ROAD and TRACK

35 cents

BRUARY, 1952

Vol. 3, no. 7

TYPE 212 FERRARI

The Motor Enthusiasts' Magazine

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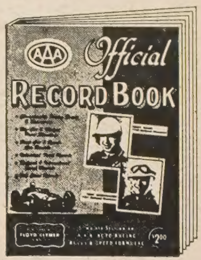

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CORRESPONDENCE

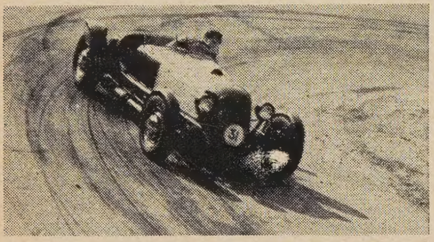
CALIFORNIA SPECIAL IN ENGLAND

My car, a Bill Baldwin-(Santa Barbara, California) built V-8 Special (May '50 **Road and Track**) has been a big surprise to England, where little is known about tuning Fords. Engine is 4.4 litre (268 cu in.); 3/16 bore; Evans 8 to 1 heads; three 97s on Evans manifold; the usual port and relieve; 30° inlet valves; Iskenderian 345 lift, track cam; lightened flywheel. With centrifugal weights removed and Nash springs, the clutch is good for any rpm. '42 Zephyr gears give 7.5, 5.08, 3.54 and the overall weight—1850 lbs.

Running fully equipped (folded top, fenders, lights, generator, windshield, spare wheel, mufflers, etc.) on gasoline, I've beaten several stripped, supercharged (on alcohol) single-seat race cars . . .

Motor Sport's editor recently wrote:

"Philip Payne ran his, complete with California plates, at the recent Gosport Speed trials and really shook us. Let me say right away that the car is a beautifully finished job, entirely suitable for the road, and indeed Phil drove it to and from the meeting in a most unobtrusive manner. But, Boy! Does dat buggy burn rubber! From a perfect getaway the car whistled down the ¼ mile in 15.2 secs.



. . . fastest time recorded for any sports car, blown or unblown and only one-and-a-bit seconds slower than Goodhew's ex-Hutchison Monoposto Alfa. Just to rub it in a bit, the hop up was faster than an E.R.A., two blown Altas and some of the 1100 Coopers. Payne reported 105 in 2nd over the finishing line and was not particularly pleased with the result. Well! Well!"

At Gosport (second run) . . . made a careless start . . . looked at rear tires after 50 yards . . . hidden in smoke! . . . A poor show of driving, but impressive demonstration of sheer power. Several asked me how fast I go in 1st . . . I change at 70 mph.

Cannot afford to compete often over here. Gasoline: 75c per gallon; rear tires: $30 each. Guys like me (senior draughtsmen) don't run V-8s, even for transportation. Wages are one third, motoring six times as expensive—maybe nine.

Fellows here take "submarine motoring" in stride. As one fast driver told me, "At Boreham a 40 mph corner follows a 130 mph straight . . . can't see a thing in the wet. I watch the rev counter. When it reaches 5100, I start to brake." Says I, "What if a plug fouls up?" Says he, "In that case I would be going into the corner full bore."

Southsea, England — Phil Payne

FORD V-8 F-8 IN CONTINENTAL

Last year we repowered my Lincoln Continental with a F-8 Ford truck block which was relieved and ported. It carries 8 to 1 Edelbrock heads, Edmunds intake manifold on which are mounted dual Stromberg carburetors, together with a three-quarter Iskenderian cam and a Vertex magneto. The transverse springs were reworked, which gives the car exceptional stability on rough roads at fairly high speeds.

The outfit is quite docile in traffic and gives magnificent performance on the road. About the only criticism I have is the fact that the steering is not fast enough for the car.

Pittsburgh, Pa. — Joseph M. Taylor

ALLARD VS. JAGUAR

Your article concerning Jack Armstrong's Cad-Allard [Sept. R & T pg. 9] was very interesting but I don't think it is complete. The Jaguar is a superb high-speed touring car suitable for competition. The Allard is a top competition car suitable for touring. As the Jaguar is out of place on a short twisting road course so the Allard is out of place for long distance, all-weather touring. Until a manufacturer combines the best features of both these fine cars only the individual owner can choose between them.

The perfect "substitute for cubic inches" is superior engineering. The XK-120C makes that very clear.

Newton Highlands, Mass. — Keene Annis

CHEVY ENTHUSIAST

Like you, millions of Americans have learned that the ohv "6" is the best all-around engine. Even tho you have strayed to V-8s in the past, we Chevy owners—a genial, warmhearted family—are willing to overlook past shortcomings.

Your transmission description was delightful, but what tickled me was your amazement at the ease with which a Chevy cruises at 60-70 mph—always a source of wonder to V-8 owners who hustle-bustle from one place to another (in an undeniably rapid manner). Matter of torque and balance, my friend. In-line engines have always been smoother than V-types (particularly 8 cylinders). I am accused of having a 10-15 mph fast speedometer in my '46 Stylemaster! Of course, I cheat a little, and don't say what's under the hood (see enclosed photograph), unless they ask . . . Tattersfield dual with Stromberg BXOV-2 carburetors (0.052" main jets); hi-lift rocker arms; Nicson cover and side-plate; stock ignition (6° advance); Champion Y-6 plugs. The combination is smooth and quiet . . . 12,000 miles without a hitch.

One point I objected to: your criticism of shift. I've driven mine 75,000 miles, and if I buy a new Chevvy, I shall custom-fit a new 1948 shift mechanism. Mine is overhauled and adjusted every 20,000 miles by a Chevrolet-trained mechanic, paying particular attention to the switch-over between 1st and 2nd gear. The chief trouble is that people refuse to use their finger-tips, but insist on grabbing the lever with full fist (necessary with every other column shift made in this country). I never take my hand from the wheel; I just push with fingers held straight, and the shift switches over smoothly, no matter how fast I try it.

Incidentally, gas mileage for 1951, 9,000-odd miles: 16.6 mpg . . . regular gas.

Washington, D.C. — Dave Kelsey

MG TRANSMISSION PROBLEMS

I recently overhauled the transmission on my MG TC . . .

First . . . don't pull the transmission without pulling the engine, unles you enjoy standing on your head for a couple of days, doing twice as much work as is necessary.

Second . . . and most important, is that the car shouldn't be towed at high speeds or over long distances unless the driveshaft has been disconnected. The reason . . . when the car is towed in neutral, with the engine shut off, a shaft within the transmission (known as the layshaft or countershaft) does not revolve. As this shaft is the only one that is immersed in the oil in the bottom of thetransmission, it means that no oil is being splashed up onto the bearings on upper two mainshafts. The transmission bearing that is most susceptible to damage under this condition is the roller bearing (sometimes called the spigot bearing) between the engine-driven shaft and the differential driveshaft. This bearing is deep within the two shafts, and is unable to dissipate heat rapidly. At 65 mph the differential driveshaft is revolving nearly 4000 rpm, and the rubbing velocity between the rollers of this bearing is very high. Unless a pretty good supply of oil is present to carry off the heat, something is eventually going to go.

This condition only exists when the car is being towed. When the engine is running and the clutch engaged, the layshaft revolves constantly, no matter which, if any, gear is engaged, the thus provides lubrication by splashing oil up over the bearings. This condition probably applies to almost any transmission which has the countershaft below the main shafts.

West Los Angeles, Calif. — Jarvis Williams

CORRECTION TO HP FORMULA

Would like to call your attention to R & T, May, 1951, page 23—"True HP Ratings." According to my texts, bhp $= \frac{2\pi rwN}{33{,}000}$ where **2**, π, **33,000** are constants, r is radius of torque arm, w is weight (lbs.) on end of arm, N is speed in rpm — ∴ rw = torque (definition),

$$\text{bhp} = \frac{2\pi(\text{torque})(\text{rpm})}{33{,}000} \qquad \frac{33{,}000}{2\pi} = 5{,}250$$

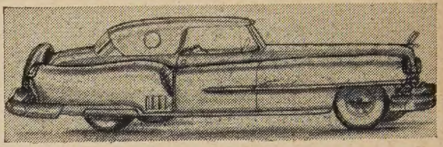
(approximately). ∴ bhp $= \frac{(\text{torque}) \times (\text{rpm})}{5250}$

NOT $\frac{TN}{3000}$ as per your mag. Yes?

Columbia, Missouri — Robert A. Jefferis

RUSSELL, A LINCOLN CONTINENTAL FAN

Am enclosing a layout for a possible Lincoln Continental, incorporating a few of the elements of styling to bring it into the more popular conception of the public's demands. I think the Continental had more character and appeal than any car ever built in Europe.



I own a '48 and have installed on Olds Rocket as well as Hydra-Matic in mine. I used the Lincoln torque tube with an angle plate welded to the rear cross-member to take the thrust, using the Lincoln universal and a short splined shaft to the Olds universal to the Hydra-Matic. I prefer this to drive to my new Cadillac which sits in the garage.

Ct. Clair Shores, Michigan — Ray Russell

$100 TALBOT LONDON

Recently I was fortunate enough to acquire a Talbot London, 3 litre, Invincible, 4-door saloon. It was rusting and rotting away in an old barn in the Glendale Hills and I got it for only $100. I am restoring it to showroom condition, having already contracted for the chrome, paint and upholstery, and the engine is o.k. . . . started as soon as I installed a new battery.

The car is registered as having been sold first in this country to Judy Garland in 1939. The engine number is 8719. Does any of your readers know what year this car was built? I would also like to hear from anyone who can give me any further details about this particular car.

12919 Trumbull Ave., — John Hector De Vaux
Highland Park, Mich.

HENRY J ROAD TEST ERRORS

I have recently read an article in the January issue of **Road and Track**, which we feel substantiates what we know to be true regarding the outstanding performance that can be obtained from the Henry J.

However, there are two things we should like to call to your attention which are in error.

First, the car loaned to you was a demonstrator that had several thousand miles on it and, therefore, would not have been in condition to obtain the absolute maximum performance. It was **not** the car that was used on the "Grand Canyon Mobilgas Economy Run." The car used on the "Run" had a standard 4.55:1 ratio rear axle instead of the 4.11:1 ratio rear axle which was in the car used for your tests.

Second, and most important, is the paragraph in which you stated that Kaiser-Frazer dealers (at least in the Southern California area) are operating on a padded price basis, which scares off many customers. This is definitely untrue.

It must be realized that for almost a year all dealers have been operating under Government Regulations which would prohibit such price pads.

It was Kaiser-Frazer's original intention to put out an automobile without all the luxury items found in other makes, to enable a person with a small income to purchase and drive a new automobile. The first Henry Js manufactured were without lids, window vents, fancy upholstery, glove comparment, etc., which held the price of the car down considerably. Experience proved, however, that there was a demand for this automobile with the above-mentioned items and for that reason, additional accessory groups were made available.

For example: a car may be purchased with or without window vents, with or without deck lid, with a folding rear seat or a stationary one, with or without arm rests, and with or without cigarette lights, to mention a few of the options. Therefore, the price of a Henry J can be eight different prices, depending entirely on the accessory groups, without even including radio, or heater, which would of course mean additional cost. Your erroneous opinion regarding the price of the Henry J was evidently drawn from inadequate knowledge regarding the above-mentioned facts.

I again wish to make it very clear that there was never a pad of any kind in the price of the Henry J in Southern California, and that the gross profit per unit realized by the Kaiser-Frazer dealer is less than on most competitive makes, which does not permit our dealers to overallow to the extent some dealers can.

R. E. Heysell
General Manager
K-F Los Angeles Division

SCHIZOPHRENIC MORGAN 3-WHEELER?

. . . good article and wonderful pictures of the Morgan three-wheeler (Road and Track, Jan., 1952). But the one at the bottom right of page 21 is not the same as the rest! . . . is it a different model?

Bellflower, Calif. R. K. Winters

T'WAS MINE!

Enjoyed seeing photo of my Morgan included with those of Walker Edmiston's car. For your information, it was a 1934 model and carried a modified JAP 998cc engine. Displacement of two cylinders was not the same. Morgan had so many vibrations I couldn't tell if any were caused by displacement variance or not. Accelerator was on steering wheel, as was the spark control. When cornering, my overcoat sleeve always caught the throttle with interesting results. Brakes used to lock occasionally, so once I collided with a chauffer-driven Rolls . . . right in the middle of Mayfair. Rolls was owned by the Duke of Devonshire who was President of the Automobile Association. I still have his letter of appreciation. On account of a sickly battery, I had to start the Morgan with a hand-crank. To accomplish this (against high compression) I always cut out one cylinder by means of a valve lifter. Foremost point on car was the distributor . . . most vulnerable . . . and frequently damaged. Points were the first thing to get wet in the rain, too. Once I ran into the rear of a Triumph sedan. The front end of the Morgan crank-pulley went thru the Triumph glass license holder, engaged, and began boring a hole in the number plate. Driver (complete with bowler hat and pin-stripe suit) wondered "was that really necessary?". Morgan got wonderful gas mileage . . . 45 mpg. With tears in my eyes I sold it when I left England in 1949. With **all** your MGs (I had two) and my present XK, if you haven't owned a Morgan, you haven't lived.

Beverly Hills, California Ben Mayer

FORD V-8 IN HENRY J

On page 10 of the December issue of **Road and Track**, Mr. James C. Hall asked if anyone had put a Ford V-8 engine in a Henry J. I put a '49 Ford engine in my Henry J last month, and you are right. It is a job and will make the Henry J go, but the lowering blocks in the rear will not take care of the front, as the front of my Henry J dropped about five inches and the A arms were slanting the wrong direction. To put the front end back where it should be I took 1950 Pontiac (six-cylinder) coil springs, cut them off the same length as the Henry J springs, and used Ford shocks. This put the front where it should be.

I used the '49 Ford transmission and overdrive. The Henry J driveshaft and the Ford driveshaft are the same diameter. I cut the Henry J shaft to the right length and cut the universal joint assembly out of the Ford driveshaft. Then I welded the Ford universal joint assembly into the Henry J driveshaft. The steering has to be dropped about three inches and the front of the oil pan has to be reworked.

By all means, he should put in an overdrive.

Body modifications are: Pontiac vertical bars in grille, Cadillac tail lights, automatic window lifts, rear glass vents, Ford sunvisor, and Kaiser hub caps.

Haven't checked top speed as yet. Speedometer only registers 100 mph. The hand has been approximately on inch past 100, upgrade. Speedometer might be way off.

New Market, Virginia W. H. Freeman

INSULT TO MEXICO?

I wish to enter a strong protest against the way you spoiled your otherwise excellent coverage of the Mexican Road Race by your chauvinistic and insulting attitude toward the Mexican people.

Imagine how you would feel as a citizen of the nation of Mexico upon looking at the cartoon on Page 44. The other two cartoons are not much better.

You were the guests of the Mexican people, using their roads to race on, in a race that was only possible because of the cooperation of their government.

Common courtesy, to say nothing of the requirements of international friendship, would dictate a more respectful attitude on your part.

Oakland, Calif. R. L. Arnold

The Mexican people are grand . . . and above all, they have a well-developed sense of humor. The cartoon on page 44 also shows our Advertising Manager (eyes on springs) and he feels fine. The one on page 47 was done by a Mexican artist for a Mexico City newspaper . . . it was well received there. Cartoons are caricatures—not portraits. Do you resent American cartoon characters appearing in Mexican papers?—Ed.

PHOTO CREDITS

Jerry Chesebrough 9-13, 24-25, 38-39
Ralph Poole 9-13
Corrado Millanta 14-15, 34-35
Jack Campbell 8
Bob Canaan 9-13
Peter Stengel 36

ROAD and TRACK

The Motor Enthusiasts' Magazine

AMERICANS TO LE MANS

Word has just been received that General Motors and Chrysler have both asked for a set of regulations and entry blanks for the 1952 Le Mans 24 Hour Race—to be run in France June 14th and 15th.

Cars already built which could qualify as Le Mans prototypes are Chrysler's K-310, Buick's XP-300 and General Motors' Le Sabre . . . the latter two of course running detuned in order to permit gasoline fuel.

Both Chrysler and Cadillac stock ohv engines have shown up well at Le Mans before and can do it again—sponsored by the factories. And there is a class at Le Mans for stock production sedans. Ford's new-engined 1952 model looks potent enough to do well as could the Studebaker V-8. If Kaiser and Willys should build competition models of their light sedans, Le Mans would certainly see two of the best handling American cars.

All this is not day-dreaming. It is known that because of the Packard showing in the recent Mexican Road Race, the Packard Company *can* be invited to participate in this year's Le Mans. Those familiar with Packard's engineering history know that this invitation will not be refused.

Let us all applaud Detroit's participation with production cars and prototypes. It will definitely help produce safer, easier to drive, satisfactory American cars.

INDIANAPOLIS FERRARI

Road and Track has long advocated American participation in European Grand Prix Racing, and European participation at Indianapolis.

It is with great enthusiasm that we announce the following important news.

Johnny Parsons, 1950 AAA National Champion has been chosen to drive the "Grant Piston Ring Special" in the 1952 Indianapolis. And the car? A 4½ litre, specially-modified Ferrari Grand Prix car.

Parsons will also be a member of the official Ferrari team during the coming Grand Prix season. Thus he will be eligible to earn points toward the World Championship. If time permits, the Ferrari factory will enter an official works car to be driven by Alberto Ascari.

Road and Track is proud to have assisted in these negotiations.

COVER PHOTO

The beautiful two-tone Ferrari coupe on this month's cover was photographed in Paris by Vachon. Body is by Carrozzeria Vignale of Torino. Mannequins are from the Couturiere Carven of Paris.

February, 1952 **Vol. 3, No. 7**

CONTENTS

Palm Beach Road Races 4
Mercedes 170S Road Test 6
Jaguar Mark VII 8
Del Mar Road Races 9
Falcone 500 14
Bristol Wind Tunnel 16
Misc. Ramblings by the Tech. Ed. 17
Ghia Chrysler 18
More About Horsepower 20
Technical Correspondence 22
Club Activities 24
Jaguar Tunng Hints 26
Fitch LeMans Special 32
Frua 33
Fabulous Ferrari Four 34
British Styling 36
Siata 37
Mexican Road Race 38
Ghia 40
Rolls-Royce Engines 42
Johnny Ysmael 44
Bentley Sports 46

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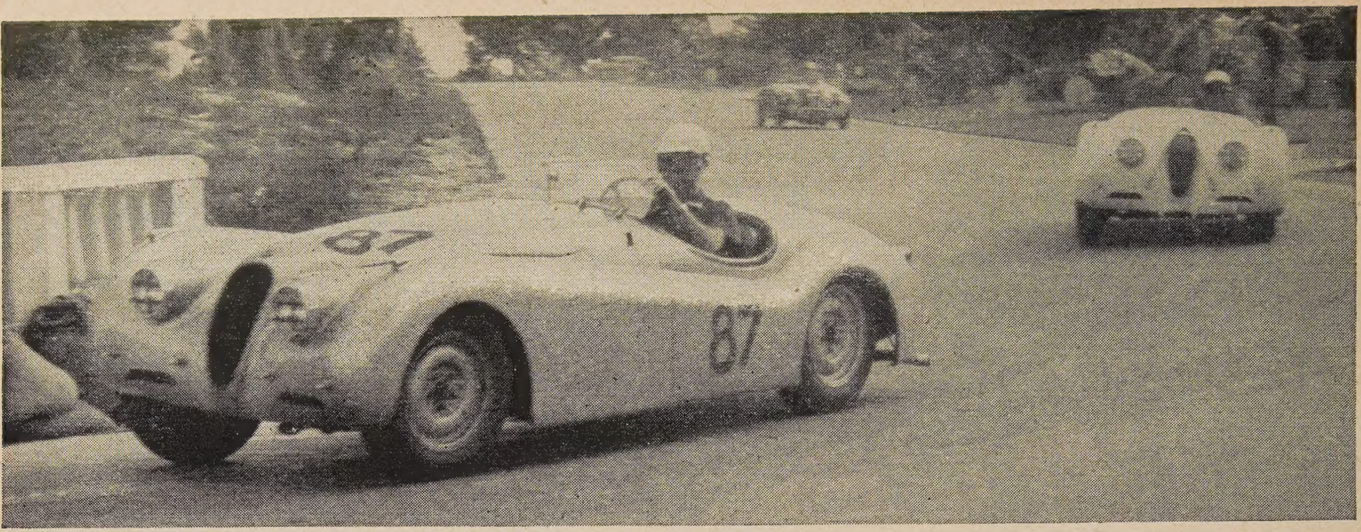


PALM BEACH SHORES ROAD RACE
WON BY JOHN FITCH DRIVING FERRARI

PHOTOS COURTESY HOFFMAN MOTOR CAR CO.

John Fitch cuts corner close in the winning Ferrari America owned by William Spear.

Fitch is congratulated by Alfred Momo at finish. Note contour-fitting seats. This race marks first victory in America for the "big" Ferrari. Many more wins in the future are expected.

John Fitch of Stamford, Connecticut, covered himself with glory at the recent Palm Beach Shores race by winning both the Hoffman Trophy (for unmodified Jaguars) and the main event (Riviera Beach Trophy) for "big" cars, driving a Ferrari America.

Starting the day's activities was the competition for the up-and-coming 500 cc cars . . . the Palm Beach Shores Cup. Four cars started, three Coopers, driven by George Huntoon, P. W. A. Dillnutt, and Al Dupont, and one Effyh, driven by Gordon Lipe. Lipe (Effyh) and Huntoon (Cooper) got off first and battled for the lead as the two remaining Coopers (Dupont and Dillnutt) dropped behind. Lipe's Effyh managed to grab the lead and hold it for two laps but on the third lap Huntoon's Cooper took over and led the Effyh for the next six. However, Lipe in the Swedish 500 hung on like grim death and finally managed to repass Huntoon at the beginning of the ninth round . . . only to fade from the race at the end of this lap. This ended the battle of the two leaders since Huntoon's Cooper froze a piston and spun out, leaving the field to the two remaining Coopers—one of which (Dillnutt) came in 1st with good style, while the other (Dupont) managed to finish 2nd after repeated pit stops. Dillnutt not only won, but, incidentally, qualifies for sportsmanship bouquets because of his slow-up to tell officials of Huntoon's plight, when the latter's frozen engine caused him to spin.

At two o'clock, or slightly later, the swarm of un-modified Jaguars got away for the Hoffman Trophy, 1-hour race. It was a three-way battle for the winning cup and the three who dominated the proceedings from start to finish were Fitch, the eventual winner, Karl Brocken, who finished second, and John Bentley (*Auto*) who captured third. Each of these drivers was in 1st place at one time or another during the race. Things looked good for Fitch. He got the lead at the very start and held it until the 20th lap when he was passed by Bentley. John kept this lead only a few moments, however, and then spun into the sand and was unable to head the pack again—on account of the sand which got into his brakes. As Bentley spun, Brocken pushed his XK into the lead and held until the 29th round, whereupon Fitch again took over and finished in that position (1st).

The Riviera Cup, run before a crowd of 20,000, started with great excitement and a wide variety of sports cars—Ferrari, Chrysler-Allard, Alfa Romeo, Porsche, Lester-MG, Siata, Siata-Crosley, Offenhauser MG and an Aerodynamic-HRG.

The excitement was furnished by Tom Cole and his Chrysler-Allard when he got his rear-end bumped by Phil Stiles (Merc-Riley) as they went into the first turn. Cole's only warning that something was amiss was from the spectators—they started to run back from the edges of the course as he drove by. Looking back, Cole saw his Allard's gas tank in flames, whereupon he drove up alongside a fire truck whose members immediately quenched the difficulty. Cole took off again but the flames restarted and forced him out for good. His try in these early laps was valiant, but the leaking gas tank was too much when coupled with a hand injury which had been forcing him to drive one-handed.

Fitch, who was never worse than second during his entire 56 laps, proved again that this was his day. He trailed Phil Walters (Cadillac-Healey) for the first 14 laps and then took over first as Walters retired to the pits with overheating problems. Fitch then went on to win, lapping Wacker's Cad-Allard before the final flag. Wacker, incidentally, was 2nd place winner, followed home by the Merc-Riley driven by Phil Stiles. Huntoon, who had driven one of the Coopers in the first race, grabbed 6th spot in the Riviera Cup with his old Alfa Romeo 2.6, while Spear's Ferrari came in 5th following Cunningham (4th) in the 166 Ferrari.

The third car in trouble was the Jaguar XK-120 of Sherwood Johnston, who, in spite of rear end trouble, which slowed him considerably, finished soon enough to get the checkered flag.

Among the smaller displacement cars, Koster's Lester-MG finished 51 laps, placing him in seventh spot, while O'Shea's Fitch-O'Shea was 8th, having completed 49 laps. Rutherford (Porsche) came home 11th.

Results

Palm Beach Shores Road Races

1.9 mile course

RIVIERA TROPHY

Position	*Driver*	*Car*	*Average Speed*
1	Fitch	Ferrari*	60.6
2	Wacker	Cad-Allard	58.4
3	Stiles	Merc-Riley**	57.4

Class 3

1	Huntoon	2.6 Alfa	57.1
2	Johnston	Jaguar XK	48.2

Class 4

1	Cunningham	Ferrari	58.3
2	Spear	2.0 Ferrari	57.27
3	O'Shea	Fitch-O'Shea	52.6

Class 6

1	Viall	Lester-MG	53.6
2	Koster	HRG	50.8
3	Rutherford	Porsche	48.4

HOFFMAN TROPHY

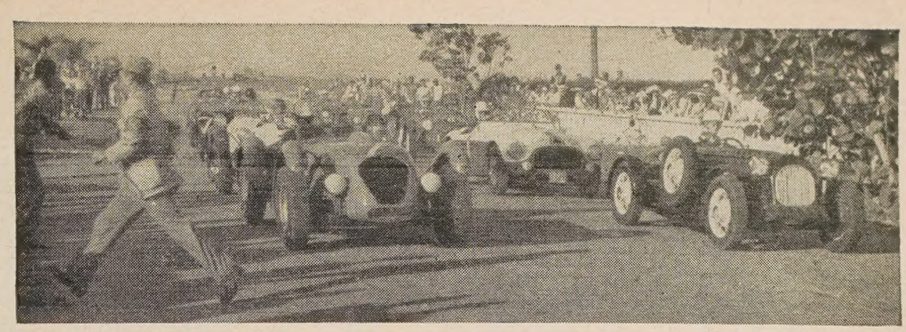
1	Fitch	Jaguar XK	55.51
2	Brocken	Jaguar XK	55.50
3	Bentley	Jaguar XK	54.50

15-LAP FORMULA III

1	Dillnutt	Cooper	54.05
2	Dupont	Cooper	46.1

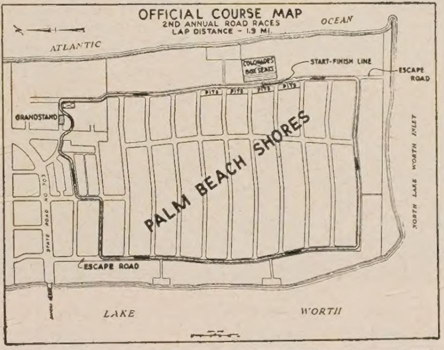
*4.1 Ferrari America—Fitch made 56 laps in 1 hour 45 minutes.

**Ardent Alligator

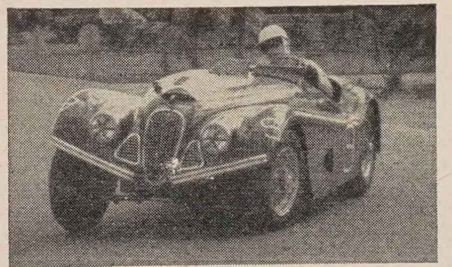


Start of the Riviera Trophy. Phil Walters (Cad-Healey), Phil Stiles (Ford-Riley) in front row.

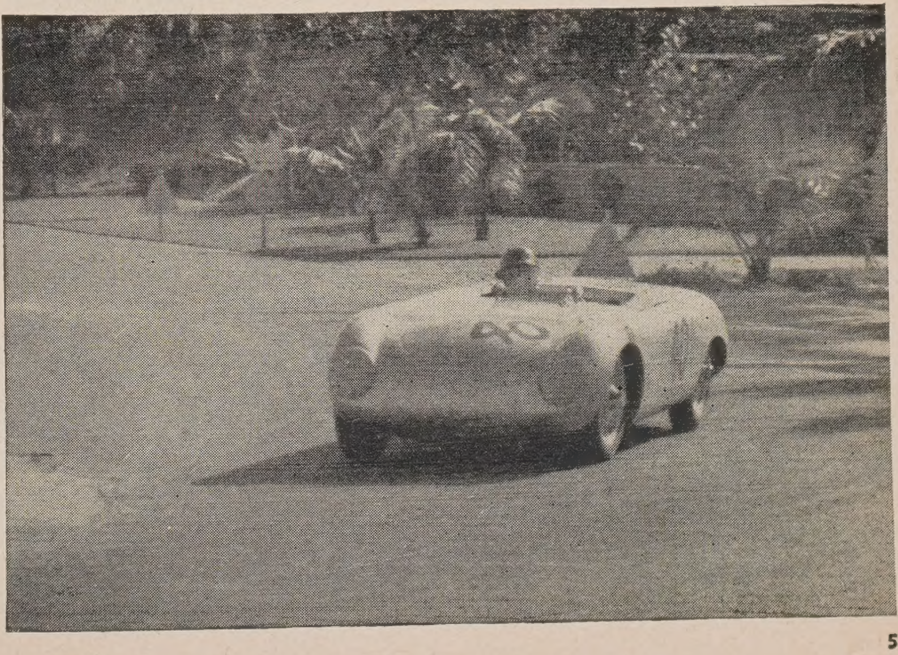
Briggs Cunningham won Class 4 in his Ferrari.



Max Hoffman, George Weaver scan Porsche.



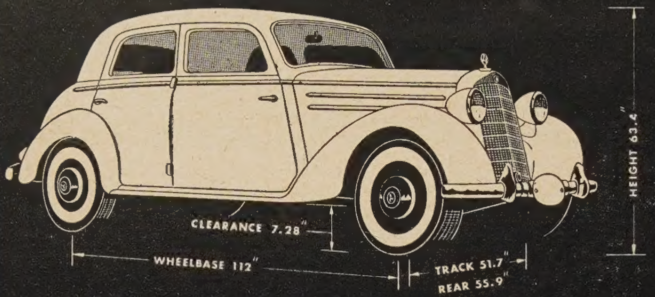
O'Brien's XK-120 modified had clutch trouble.



German Porsche cornering (took 3rd, Class 6).

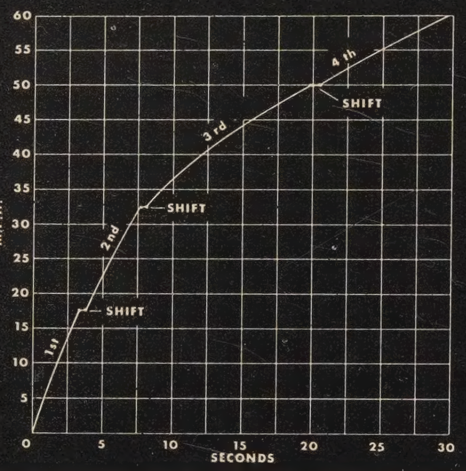
ROAD and TRACK ROAD TEST F-1-52

Mercedes 170-S



SPECIFICATIONS

Arrangement and number of cylinders	4 in line
Valve Arrangement	L-Head
Compression Ratio	6.5 to 1
Horsepower	52 at 4500 rpm
Bore 2 15/16 in. Stroke 3 15/16 in.	
Displacement 107 3/4 cu. in.	
Transmission	4 speed syncromesh
Dry Weight	2690 lbs.
Overall Length	175.3 in.
Overall Width	66.3 in.
Number of seats	2 front, 2 rear



PERFORMANCE

Standing ¼ mile	27.5 sec.
Flying ¼ mile:	
Upwind	68.7 mph
Downwind	72.0 mph
Average	70.4 mph
Turning circle	36 ft.

FUEL CONSUMPTION

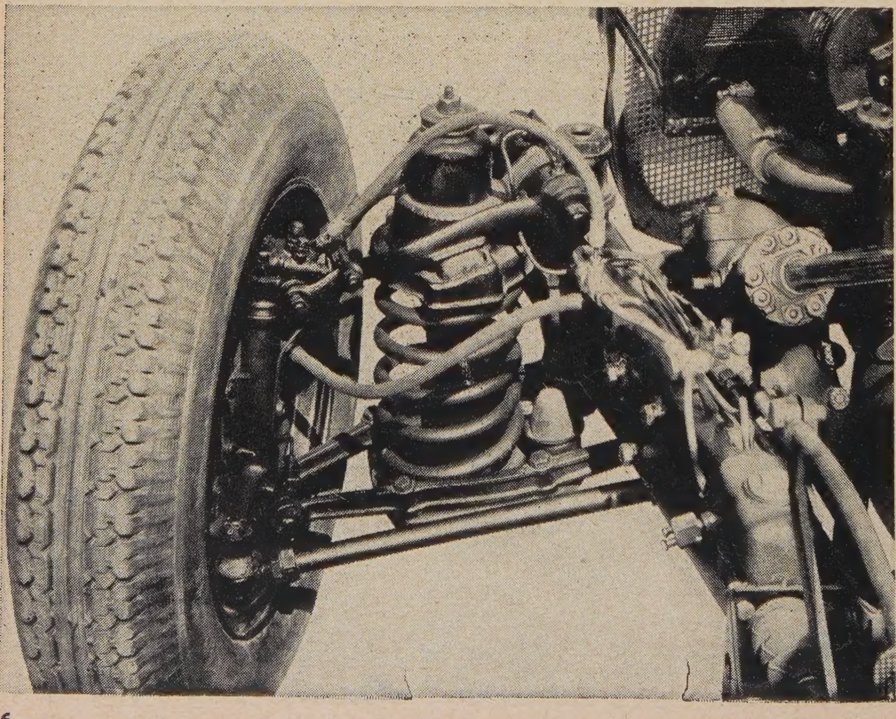
At a steady	Miles per gallon
25 mph	34.2
35 mph	30.8
45 mph	27.1
55 mph	24.0
65 mph	22.4
75 mph	16.2

SPEEDOMETER

Actual Speed	Speedometer
54.8 mph	60 mph

In spite of the fact that the Mercedes 170S is conservative to the point of being "old fashioned" in appearance, it remains one of the most interesting cars yet to pass thru the hands of the *Road and Track* test staff. The quotation marks around the words *old* and *fashioned* are used advisedly—there being no conclusive proof that modern designs in four-passenger, medium-powered cars have any great advantage to the owner. However, that is a subject for debate elsewhere, and the fact remains that the decision of the manufacturer to continue a pre-war design in a post-war automobile, conceals from the uninitiated a great variety of interesting driving. It is underneath and inside the excellent coachwork of the 170 that the investigator has his eyes opened.

The particular model tested was a private car, owned by Mr. W. O. Williamson (La Crescenta, California, Oldsmobile dealer), whose wife purchased the car in Germany late last year. 25,000 kilometers showed on the odometer.



What Mrs. Williamson was chiefly interested in was the 300 Mercedes (*Road and Track*, Dec. '51). However, this model being unavailable, the Williamsons settled on the 170 and brought it home with them.

When *Road and Track* picked up the car, prior to running the tests, some discussion got underway with friendly Stan Longmore, Williamson's sales manager, as to the safe cruising speed of the little Mercedes. To answer the question, Stan pulled the car's manual out of the glove compartment and read a highly interesting two lines:

Maximum speed	75 mph
Cruising speed	75 mph

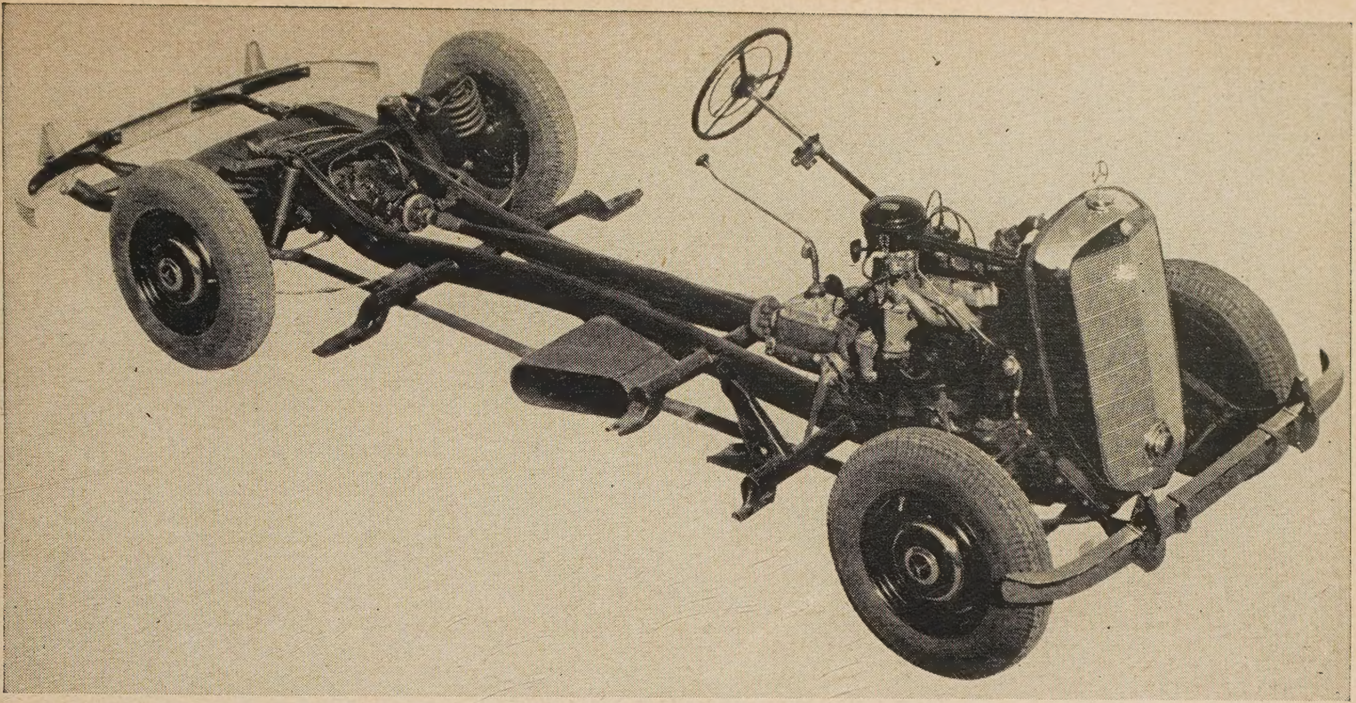
This factory recommendation—that the car be driven flat out from point to point—is a slight hint as to the confidence the makers have in their product.

THE ENGINE

When the hood is lifted, one immediately gets the impression that here is one of the few really quality, small cars in the world today. There is a complete absence of confusion in the engine compartment . . . plenty of space for the repairman to work (the flat head engine sits rather low in the engine room) and careful planning, indicated by the simple, almost beautiful wiring plans and general layout. Workmanship of the highest German order has obviously been directed toward the building of the car.

Careful thought has been given the manifolding . . . most clean in design, and the car develops 50 hp at 2630 feet per minute piston speed (100 lb b.m.e.p.)—which explains the car's ability to maintain endlessly its maximum rpm in 4th gear.

The engine is quiet. Very little sound comes from under the hood, whether open or closed, and this makes for very pleasant driving. However, this very silence gives the illusion of less performance than the little car is capable. The 1767 cc engine, of



course, will not supply the necessary acceleration to satisfy the average American driver. And there are few, with the exception of an occasional connoisseur, who will appreciate the car's perfect manners enough to sacrifice vivid acceleration and top speed.

CHASSIS AND SUSPENSION

The frame is thin but stout oval tubing, with a high standard of rigidity, necessary with the independent suspension both front and rear.

Speaking of the suspension, it must be admitted that the riding and driving qualities of the car are like none other we have experienced—and would take some getting accustomed to. Over a really rough road, the car is as smooth and light handling as any other car would be on a smooth highway. Pot-holes and corduroy surfaces are traversed with a silence and lack of vibration that is almost eerie. As a matter of fact, care must be taken by the driver, who could easily damage the tires in chuck holes without realizing it. The car smooths out the worst breaks in a road surface with ease.

However, smooth roads are something else again. Watching the car from the rear, as it moves down the road, one is impressed by the camber of independently suspended rear wheels—and again we are indebted to *Motor*, which tells us that the wheels lean outward at 2 degrees with only the driver in the car; and lean inward 3 degrees with a full load. This scrub of the rear wheels makes for some rather interesting manifestations on a straight flat surface.

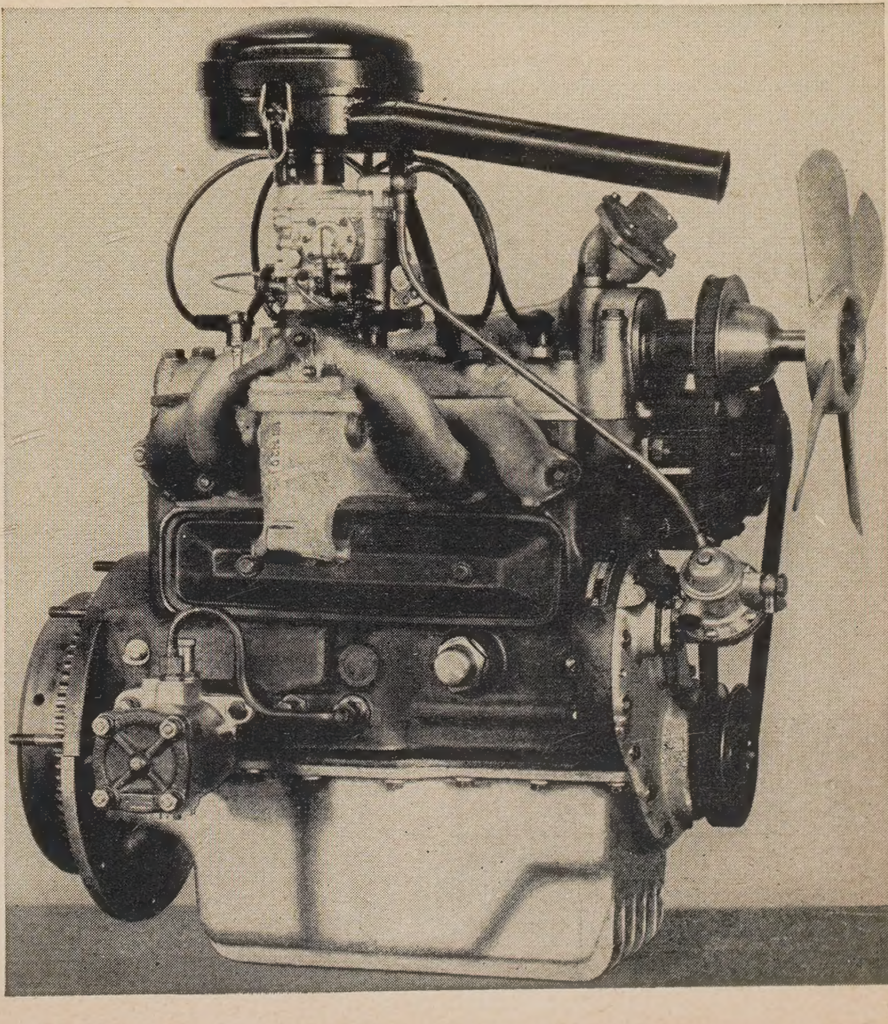
On fast (70/75 mph), straight runs, the little sedan has a tendency to "move around" on the road. At first the driver attempts to correct for the lateral movements caused by the independent rear suspension. He feels a great insecurity as the car feints ever so slightly toward one side of the road and then the other. However, the man at the wheel soon learns that, if left to itself, the car will "think for itself"—do its own correcting.

Before leaving the chassis, it should be mentioned that the steering was light and positive—and this description is not used lightly . . . to be more definite, the steering was delightful. In fact, the car in all phases was remarkably easy to drive.

COACHWORK AND INTERIOR

The car tested was "quality" thruout. The seats, both front and rear, were fitted with deep springs, giving a most comfortable ride, except when the car was exhibiting its wandering tendency mentioned above. Wood trim about the windows and on the dash was of black, highly-finished hardwood, imparting a richness to the interior. Driving position was good and passenger comfort, of course, was enhanced by the extreme silence engendered by an already quiet engine, further dampened by the completely rubber-mounted coachwork.

The 170 has the feel of quality. Novel hornring also works turn indicators . . . but they don't cancel themselves, which, tho a disadvantage to some, would be an advantage to those who are annoyed by the self-cancelling type on shallow turns. Ash trays good . . . when the top of one of them is closed, the bottom opens, dumping cigarette butts into a lower airtight chamber. No official price on the car here, but Williamson paid around $2500 in Germany.



Jaguar Mark VII Driving Impressions

"Sports cars are all very well . . . fun, too, I guess. But what I want is something bigger . . . more roomy. A high speed sedan."

Sports car lovers have heard this type of rebuttal more than once. Enthusiasts have discovered the futility of trying to sell this type of fellow on a small, maneuverable two-seater. It's useless . . . he just ain't the type. You can talk all you want to about the real living that can be done in a sports car—about the wind in your face, the shifting-down and slamming into a four-wheel drift, the boyhood-regained feeling you get. But the man you're trying to convince probably has (1) three kids and another on the way, (2) a wife who values her hair-do (3) and/or he himself likes living room comfort with his travel. He likes silence, comfort, space, and power.

The Reno Road Race (*Road and Track*, Dec. '51) presented a transportation problem to the staff. First, it's a long way (500 miles) to Reno from Los Angeles; and second, there was a crew of eight plus 400 pounds of equipment to be transported. There are several sports cars around the Road and Track premises, but it would have taken all several of the little "bugs" plus a couple of dog sleds to turn the trick. What was called for was a fast sedan of generous proportions . . . and the sleek new Jaguar seemed just the car. The Henry J (January, '52 *Road and Track*) would carry the other half of the load.

A phone call to genial (and a guy that handsome doesn't need to be half as genial as Chuck is) Charles Hornburg (Jaguar's Western Distributor) produced the suggestion that we use our old friend's (International Motors') Mk VII demonstrator . . . *if* Roger Barlow was willing, of course.

When we picked up the car—Roger was willing—we asked him to check us out. "What do we have to watch? Does the sedan have any peculiarities? What shall we be careful of on this long drive?"

"Nothing," Barlow told us. "You can't run the legs off *this* beauty."

Well, we loaded piles of race programs, stacks of photographers, and bunches of editors aboard and took off for the "Biggest Little City in the World"—Reno, Nevada.

Thru traffic, we were sitting on top of the world. The Mk VII handles like a baby-buggy—that is, a *good handling* baby-buggy—and the four-speed gearbox got us way out ahead of everyone—even with the tremendous load we were carrying. We felt pretty elegant (Chesebrough had taken a shower) as we glided out of town. In fact, we were pretty darned snooty about the whole deal. That Mk VII was very new to the American motoring scene that day and we graciously accepted the envious stares of the peasants along the way . . . casually flicking a cigar ash out the window, or yawning delicately, while we gave the impression that there were several of these cars in the family. Our attitude said we had Jaguars to burn.

It was shortly after this ego-boost that we found the first fault with the gleaming British import. Raw gasoline fumes began to invade the interior of the car. It was a cold day but our only alternative was to shiver as the open windows aired things out a bit. Instead of getting better, the condition became worse, particularly after we had filled the two-fender tanks to the brim. (Later we taunted Chuck Hornburg about his "perfect" car and he took it so to heart that we felt ashamed of ourselves. However, he reported that the trouble had been located . . . and corrected. Chuck says Jaguars are *perfect* and goes all out to prove it.)

Roger Barlow had asked one favor: the car only had a scant few miles on it when we picked it up. He said it would benefit in the long run if we curbed our desires about speed and kept it under 75 mph. We did . . . but we didn't like it. The factory claims 105 genuine mph for the new model, and the way it floats at 75 mph leaves no doubt that it could give the new 105 mph Chrysler a good run for its money.

The trip was made (except for the since-corrected gas fumes) in great comfort—after we learned how to operate the heater—and we averaged well over 60 mph for the five hundred miles (less time-out for food and photography).

Our somewhat devious return route Los Angeles-ward took us thru ghost towns of early gold-rush days, over to beautiful, expansive Lake Tahoe and back to the main highway on a short cut. Your editor picked this road and it nearly got him voted out of office. It was the roughest, twistiest, bumpingest, Wild Westiest road in California. The road gang must have been chasing a rabbit when they built it. But the Mk VII loved every bump, every twist, every turn. It seemed as tho the car—getting a chance to show off—refused to slow down. In fact, smoking brake linings fairly smelled up the trail as we came cavorting along, playing Jaguar-round-the-boulders. Up one side of the mountain in twisting and back-breaking curves we went, only to come slithering down the other side and up the next mountain. If the Jaguar had had a couple more inches of wheelbase, we would never had gotten thru.

All this play-time had eaten into our schedule, so, once back on the main road, we gave our beauty its head. And, brother, when you let the Jag out, you know you're going someplace. On one particular long straight, Nevada stretch our average was 70 mph for over an hour—and the car wasn't even breathing hard.

Notes and Comments

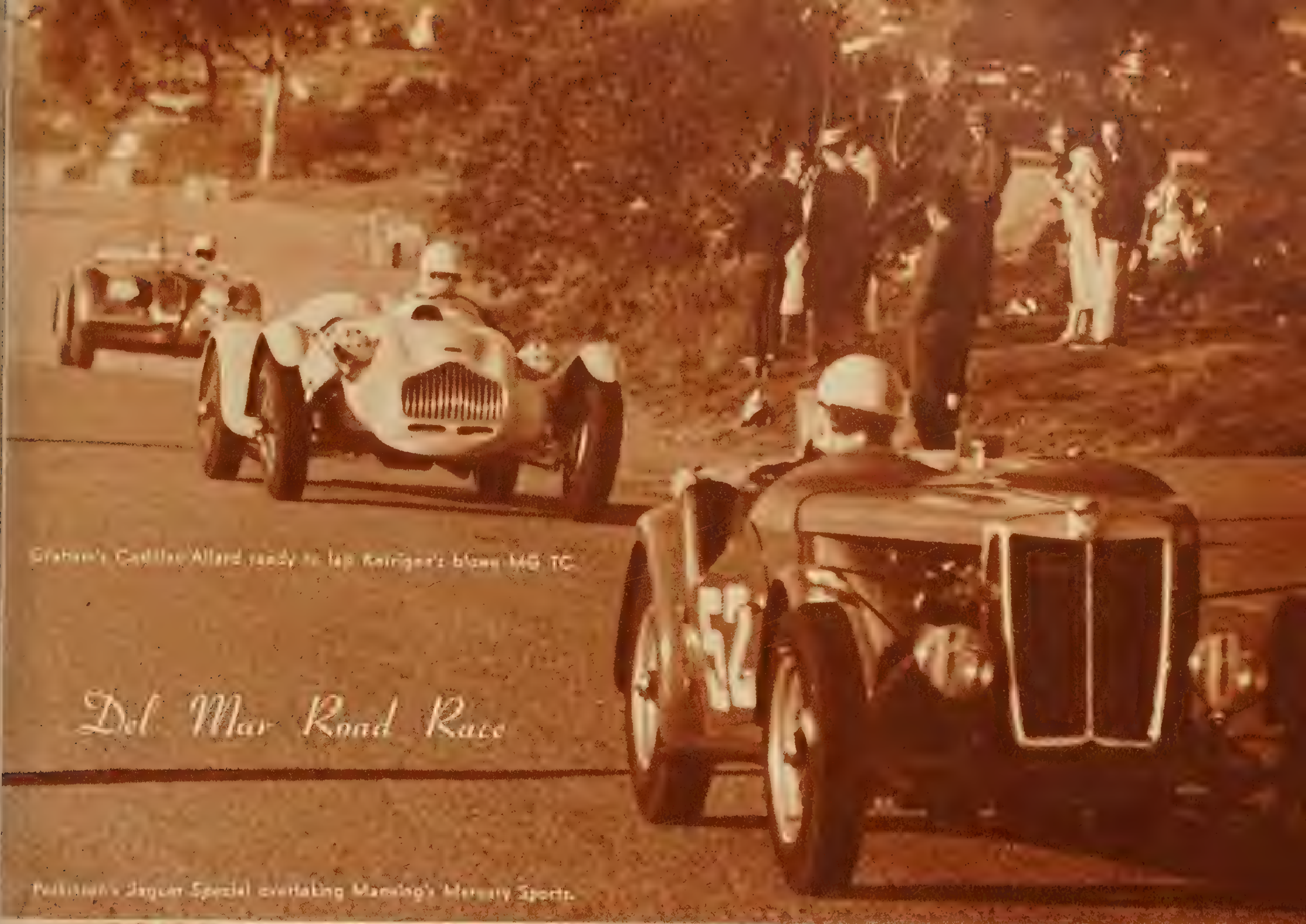
Rides softly, does this Jag . . . almost as softly as the softest American sedans—yet corners like an ice-skater . . . smooth . . . effortless. When you come into a turn fast, impression is that you're not going to get around it. But the moment third gear is changed down into and the accelerator is depressed, the Mk VII sits down and straightens out the corner handily.

No question about it . . . an impressive automobile. Pure originality and quality are immediately evident . . . particularly to gas station attendants. Their opinions are good—they see 'em all. First they admire two 14-gallon tanks in the rear fenders. Then they carry on over the dohc engine, then sell themselves completely when they spot the interior trim (fine leather, beautiful walnut paneling).

Car is geared for maximum "go." Staff Henry J outdragged staff Ford business coupe by quite a few car-lengths. Mk VII (weighing in at around 4000 lbs) lightly brushed off both of these cars as it laid down rubber for over 100 feet in 1st gear.

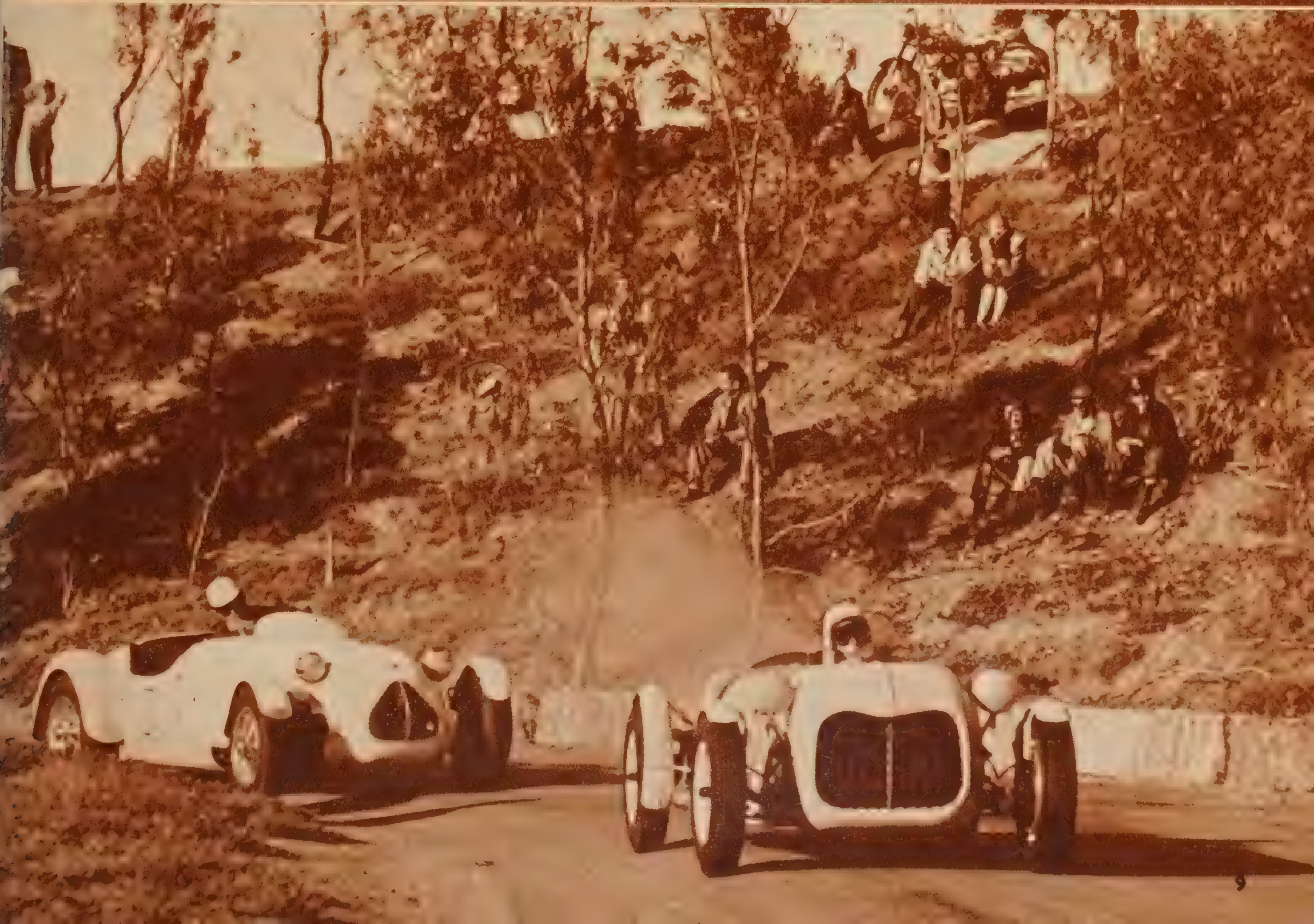
As in the XK, there is quite a long throw from 1st to 2nd on the gear lever. After a few shifts, you are used to it. First models let a lot of engine heat into the car via the gear shift lever—this also has been corrected. When one fuel tank runs dry, driver throws a switch located on the dash. This cuts in other tank. Gauge (which has been registering empty) now indicates level in 2nd tank. Dash has three glove compartments and tools are in sponge rubber lined kits in each of the front doors, along with spare spark plugs, gaskets, etc. Monstrous luggage space in rear trunk. Price is within reason for the Cadillac-Packard-Chrysler crowd and is our choice in that price and size range.

Del Mar Road Race



Graham's Cadillac-Allard ready to lap Kerrigan's blown MG TC.

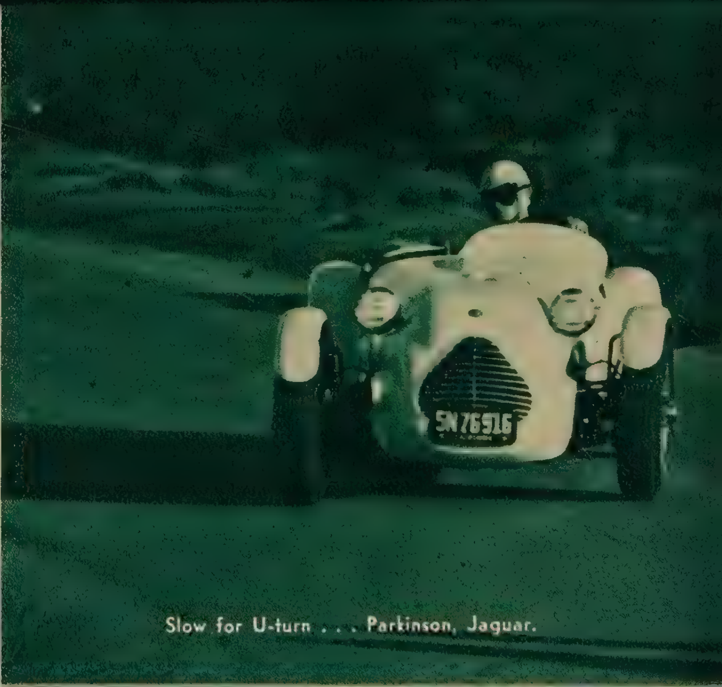
Parkinson's Jaguar Special overtaking Manning's Mercury Sports.



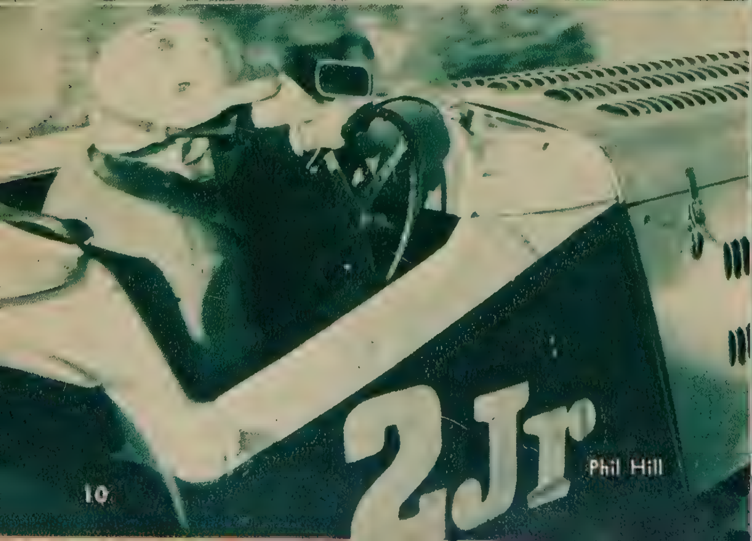
Grim . . . Jack McAfee in Edgar's blown MG

Del Mar

Two Masters . . . Graham leads Hill



Slow for U-turn . . . Parkinson, Jaguar.



Phil Hill

Fast bend . . . Parkinson first round.

Parkinson drifts as he leaves corner

Duel . . . Graham leads Hill

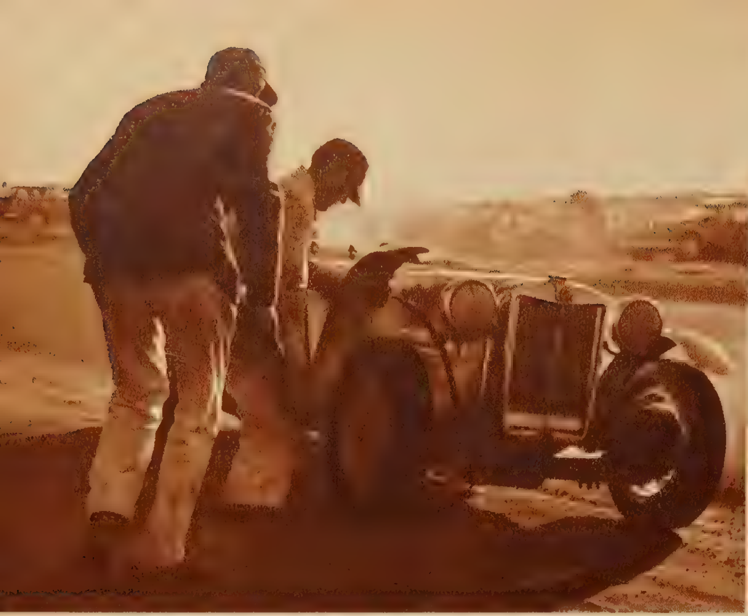
Road Race

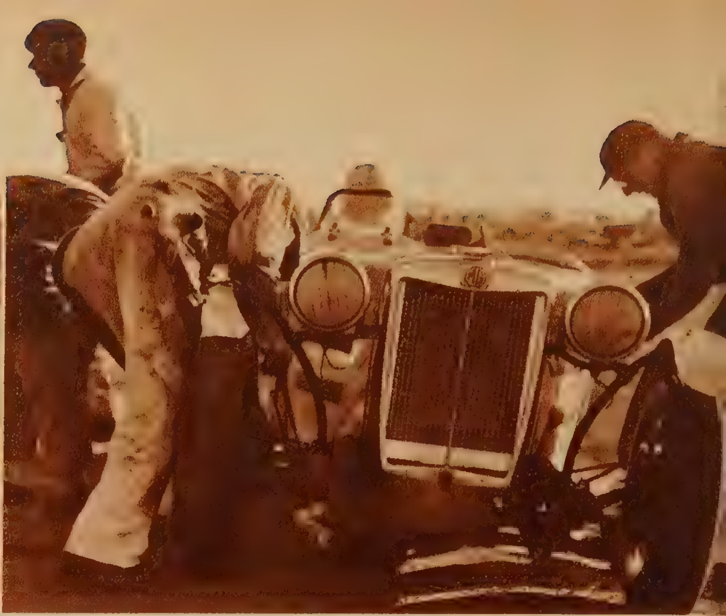
At first, the transplating of the Apple Valley Road Race to Del Mar, California, caused complaints from the sports car contingent. But one look at the course (5 miles south of Del Mar) during practice and everyone agreed it was the best on the Pacific Coast. The drivers were well pleased by the slow and fast corners and the spectators found they could stand at nearly any spot on the rolling grounds and see most of the race.

A stock production car event was the opener of Sunday's (December 9) competition—an eagerly awaited race for two reasons: 1. The first running of the Jowett Jupiter (on the West Coast); 2. The MG-Singer battle—carried on from Palm Springs. The Jowett came thru the first two or three laps way out ahead, but the inexperienced driver (Newton Small) got crossed up in a corner, letting Strawn's MG thru to victory. The Singer 1500 didn't seem to have a chance against the other cars, so the much expected duel didn't come off.

Josie von Neumann looked great in the ladies event—driving Johnny von N's MG. Tho Myra Zeiler's XK seemed to have the "go" in the beginning of this handicap, Josie's lead-foot paid off when she made the light little special fairly fly around the course to 1st place.

The main event turned out to be as exciting as the course was good—surprise after surprise kept the spectators on their toes. Among the big cars, Mike Graham got his foot in the Allard and passed favorite Parkinson (XK-120 Special) early in the race only to be repassed almost immediately. Quick deciders figured "this it it" as Graham proceeded to follow Parkinson meekly (?) 'round and 'round. At the very end—about three laps from the finish it became apparent that Graham had been wisely nursing the Cad engine, for he caught the pit signal to speed up and passed Parky in a breeze to finish first.



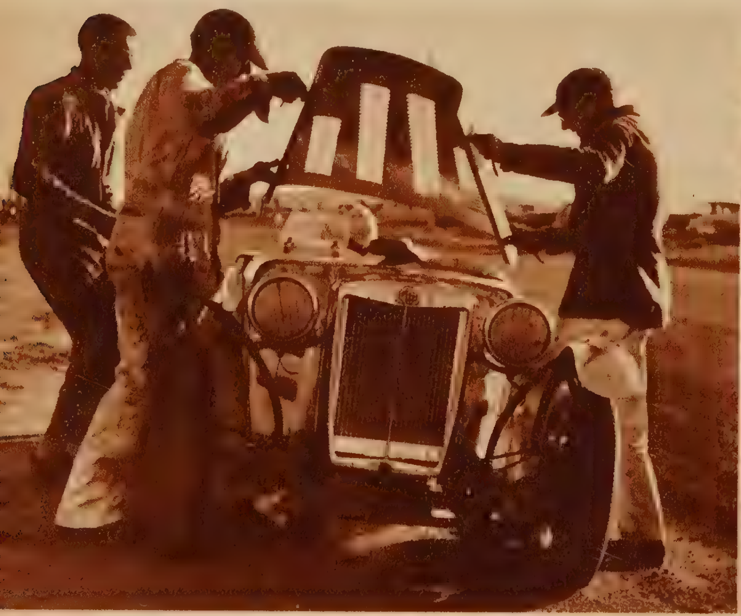


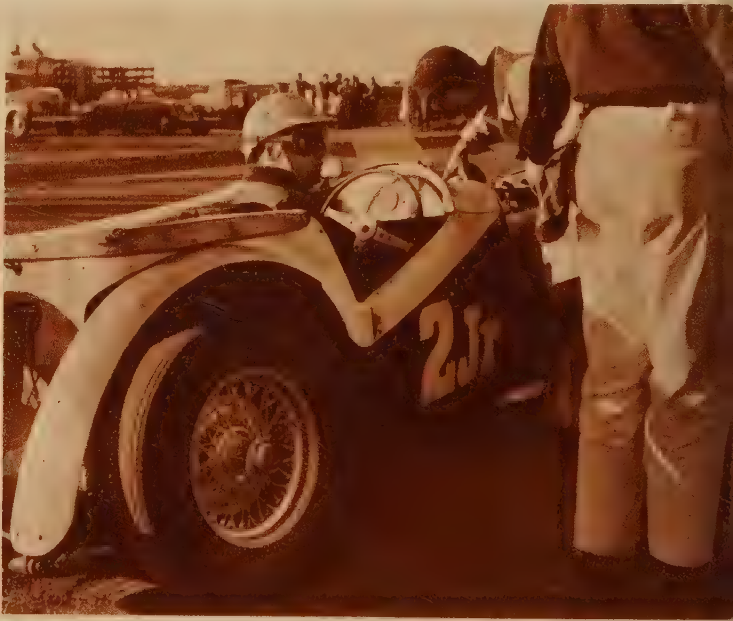
1. At Del Mar Phil Hill pit stops with fender adrift.

2. Crew cooperates to hurriedly remove aluminum hood.

3. Oil is rapidly rushed to steaming, thirsty engine.

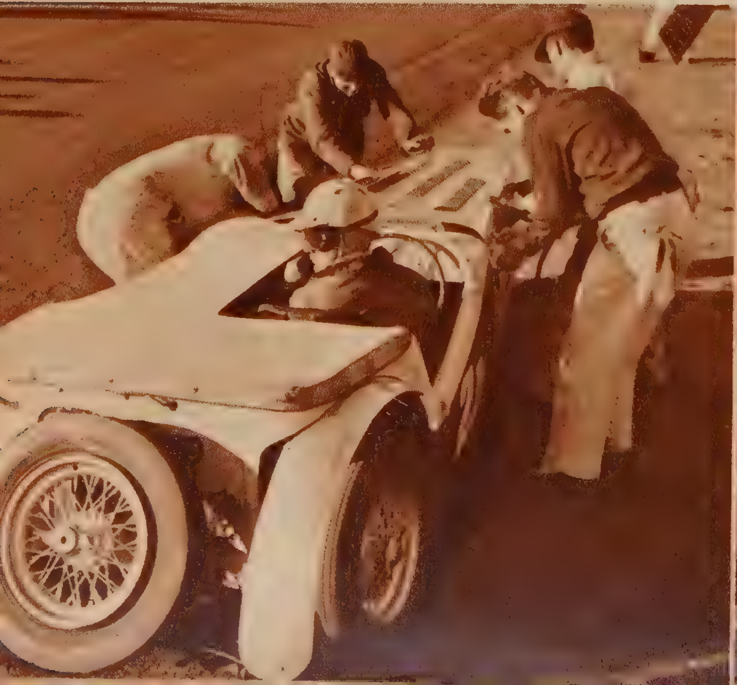
4. Staccato information exchange . . . Hill and pit-boss.

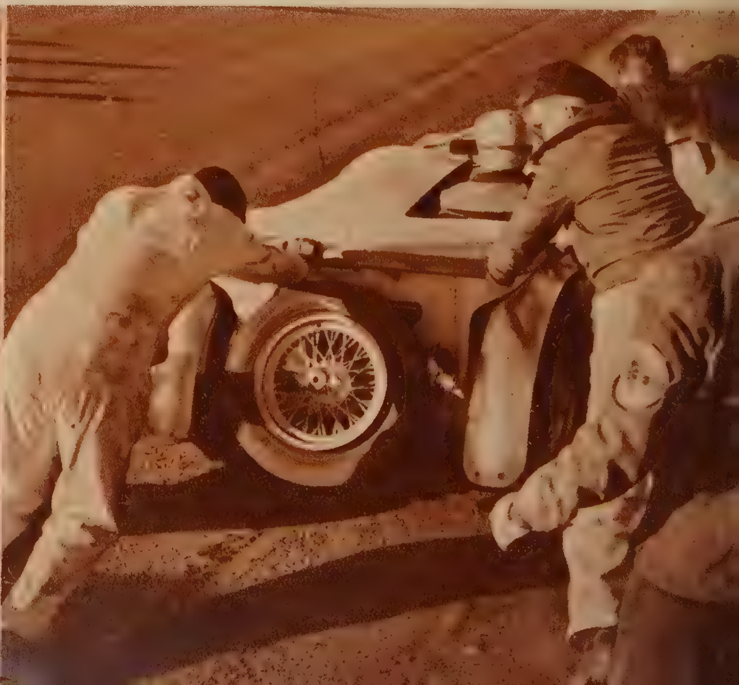




5. Hill scans traffic during a four man hood operation.

6. Push starting. . . . Approval from official, Bill Pollack.





Meanwhile, Phil Hill, who had (during practice) convinced himself that the V-8 60 MG had no handling qualities at all, soon changed his mind. Before many laps had gone by, he and the little car made friends and he found himself happily out in front. The engine couldn't take his heavy urging, tho, and he was forced to retire after the 2nd pit stop.

In the Del Mar Trophy (run concurrently with the San Diego Cup race) the regular duel went on—von Neumann and Barlow . . . MG and Simca. The former romped ahead of the latter in the early stages, but when Barlow got serious von Neumann was no match. Barlow was well up with the big cars near the end and made a valiant attempt to place 3rd overall—but the XK beautifully handled by Harry Steele (*Speed Age*) edged him out.

SAN DIEGO CUP

50 laps 1501 cc to 8000 cc. 1. Graham (Cad-Allard); 2. Parkinson (XK-120); 3. Steele (XK-120); 4. Barlow (Simca); 5. Manning (Merc Special); 6. McAfee (Supercharged MG). **CLASS I (under 1000 cc)** 1. Ganschow (Morris M.). **CLASS II (1000 to 1500 cc)** 1. Barlow; 2. Kerrigan (MG TC). **CLASS III (1500 to 2000 cc)** 1. McAfee; .2 Hill (MG V8-60). **CLASS IV (2000 to 4500 cc)** 1. Parkinson; 2. Steele (XK-120). **CLASS V (unlimited)** 1. Graham; 2. Manning.

DEL MAR TROPHY

35 laps for sports cars up to 1500 cc, supercharged up to 1000 cc. 1. Barlow (Simca); 2. Kerrigan (MG TC); 3. MacDougall (MG TD).

LADIES HANDICAP

5 laps open to all sports cars. 1. Josie von Neumann (MG TD); 2. Helen Livingstone (MG TC); 3. Myra Zeiler (XK-120).

STOCK PRODUCTION CAR RACE

10 laps for stock sports cars. 1. Strawn (MG TD); 2. Small (Jowett Jupiter); 3. Young (MG TD).

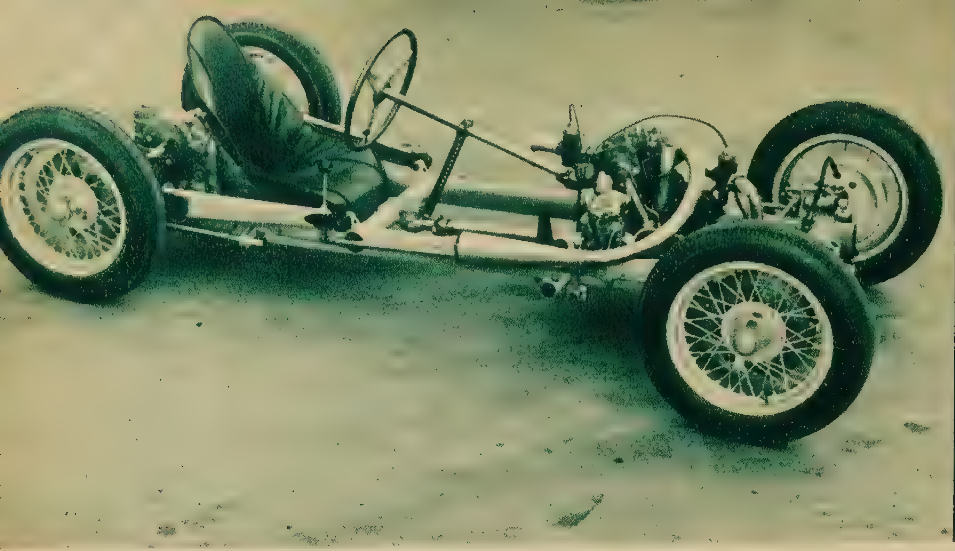
Manning's special Special went well.

Barlow's Simca . . . like a bomb.

Graham passes Parkinson

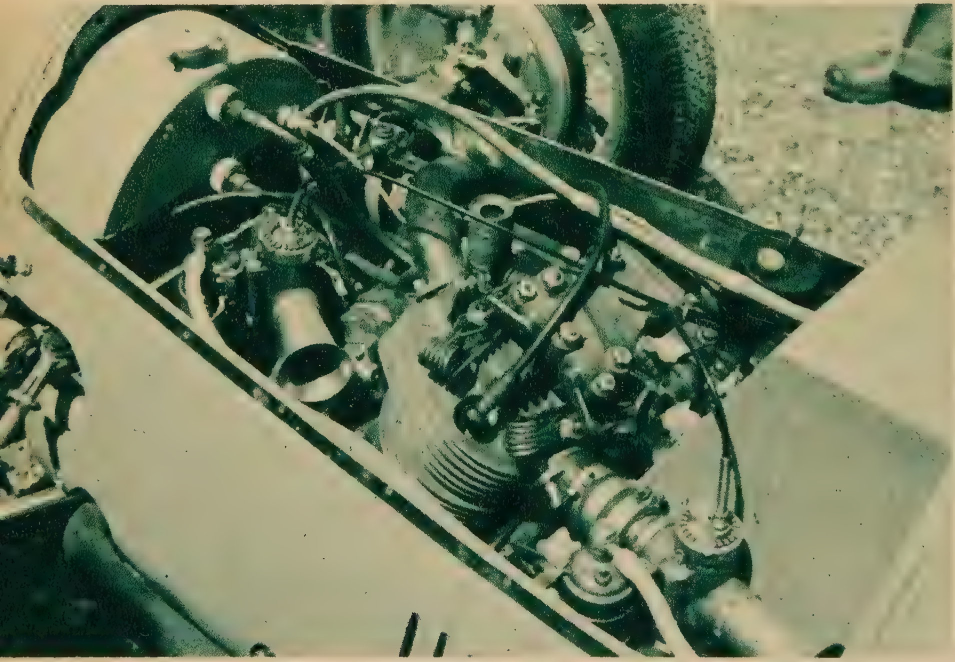
Allard co-operated with Graham this time.

Falcone Guzzi



Above—All chassis components (except engine) are new, built to specifications.

Below—The 500 cc Guzzi motorcycle engine. Never before used in race car chassis.



Article and photos by Corrado Millanta

Altho many of the Formula III (500 cc) European cars have brilliant handling and performance characteristics, too many are far out of the picture as far as a classical race car is concerned . . . most 500 cc cars —in truth—look like small monsters. The Falcone-Guzzi, built by Ing. Savonuzzi of Turin, is an exception—a beautiful race car . . . in miniature.

Not ready for the past ('51) season, the little gem is now practicing endlessly and will appear for the 1952 competitions. A superficial glance at these exclusive pictures shows that the car is in reality a quality Grand Prix machine. It challenges the full-scale European race cars in craftsmanship, design and engineering.

The Guzzi engine was developed and put into the Moto-Guzzi (motorcycle) in 1934, where it has been most successful. The Falcone is its first usage in a four-wheel chassis.

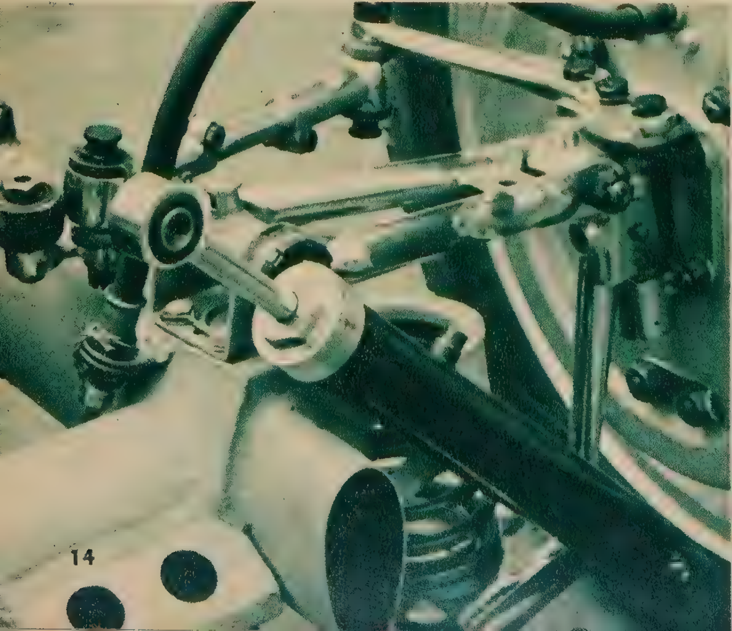
The low engine location puts the driver's seat right on the drive shaft and this member, in spite of its orthodox conception, does not bring the weight of the car above that of the lightest, rear-engined Formula III cars in Europe.

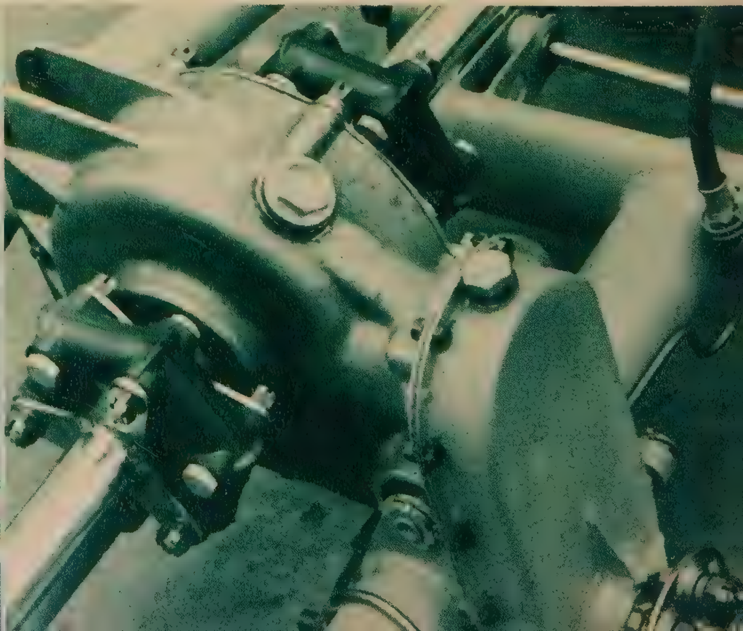
Specifications

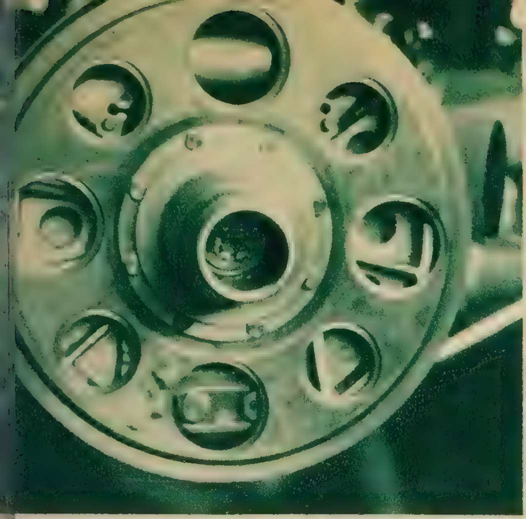
Cylinders	2 (120° V)
Bore/stroke	68/mm (square)
Displacement	500 cc
Compression ratio	8.7:1
BHP (8000 rpm)	51 hp
Lbs/hp	12¼ - 1
Wheelebase	78.7 in.
Tread (front)	44.1 in.
Tread (rear)	43.3 in.
Curb weight	583 lbs.
Top speed	106 mph

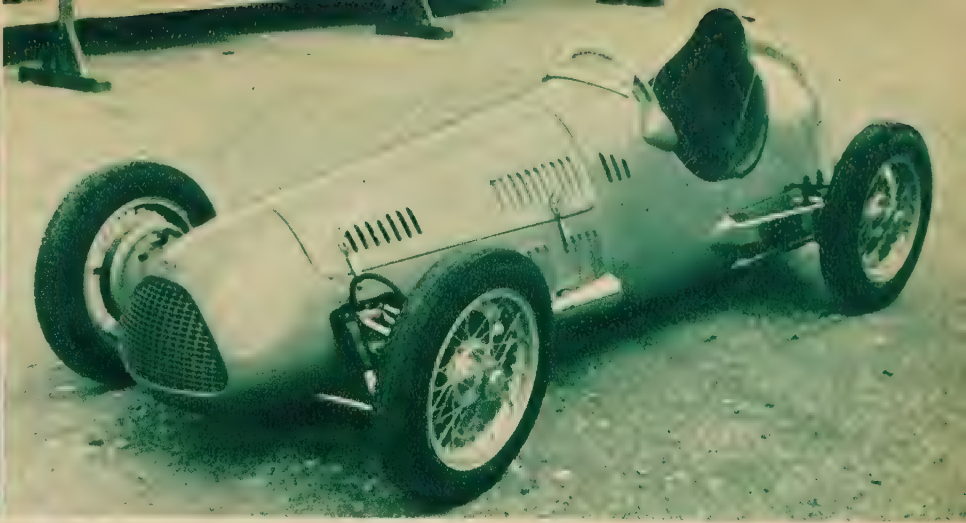
Below—Left—Clean front suspension, tubular chassis, efficient telescopic shocks.

Below—Right—Beautiful are the molded rubber universals and offset drive shaft.







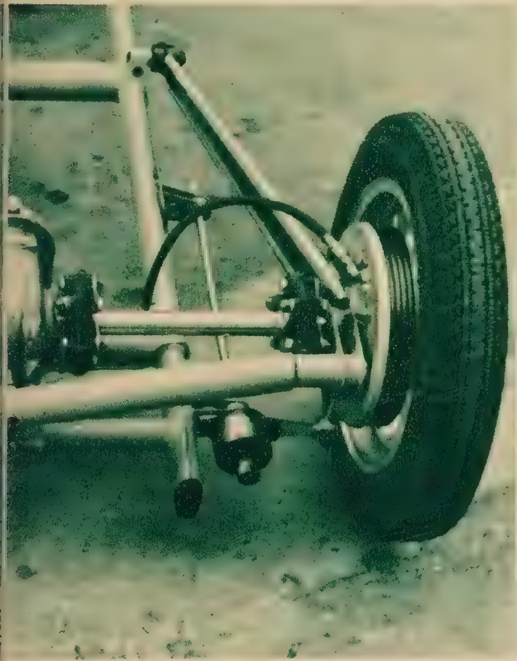


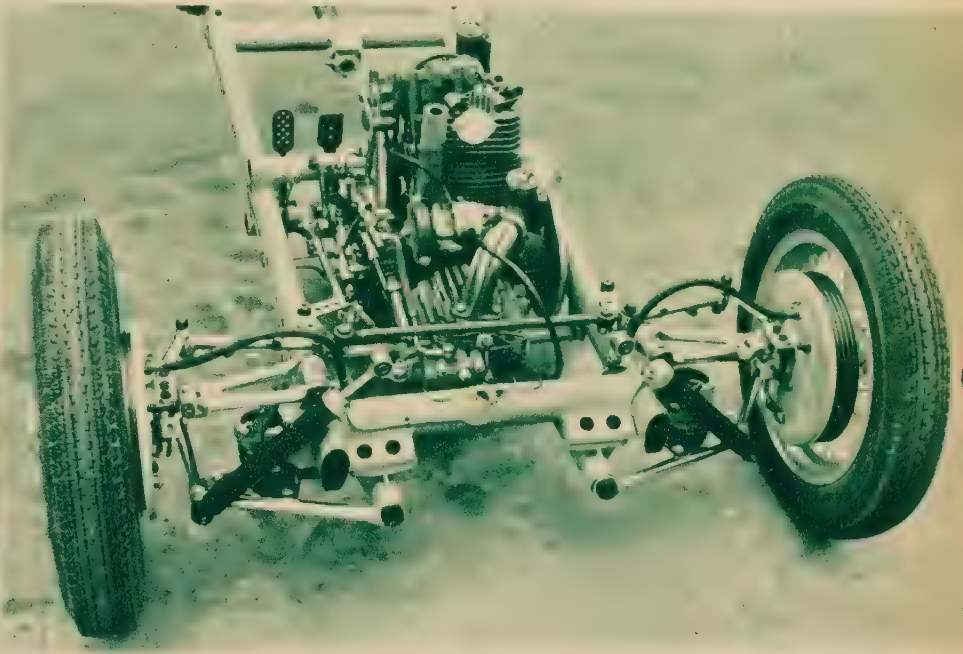
Above—Air-cooled brakes.

Below—DeDion rear end.

Above—Italian genius Savonuzzi expresses himself in miniature.

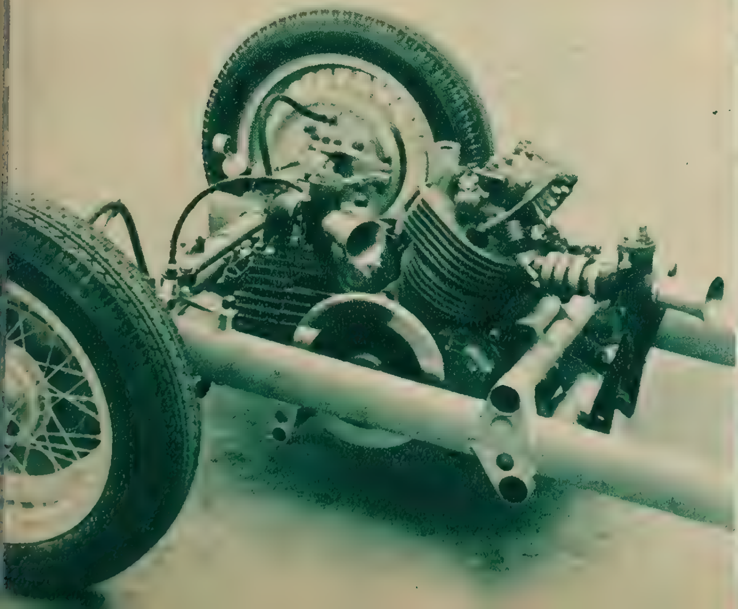
Below—Everything drilled out for lightness—even footpedals.

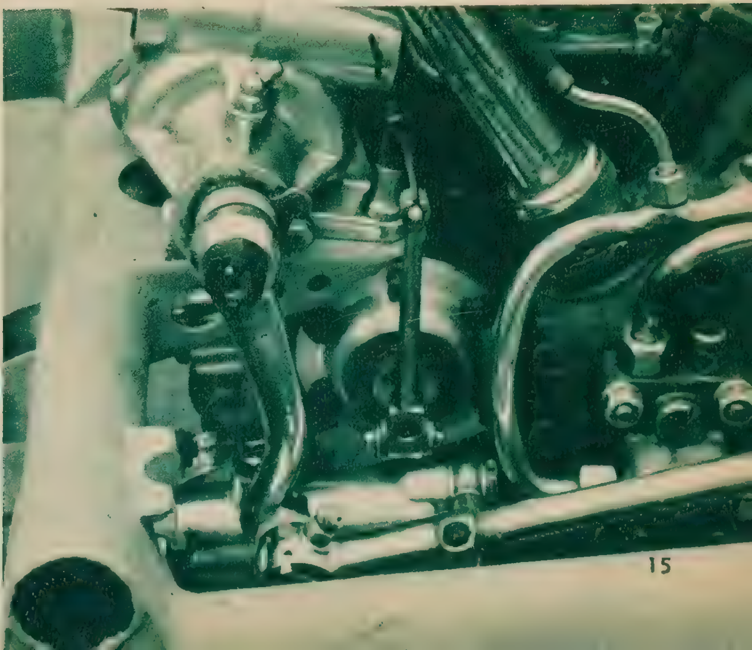


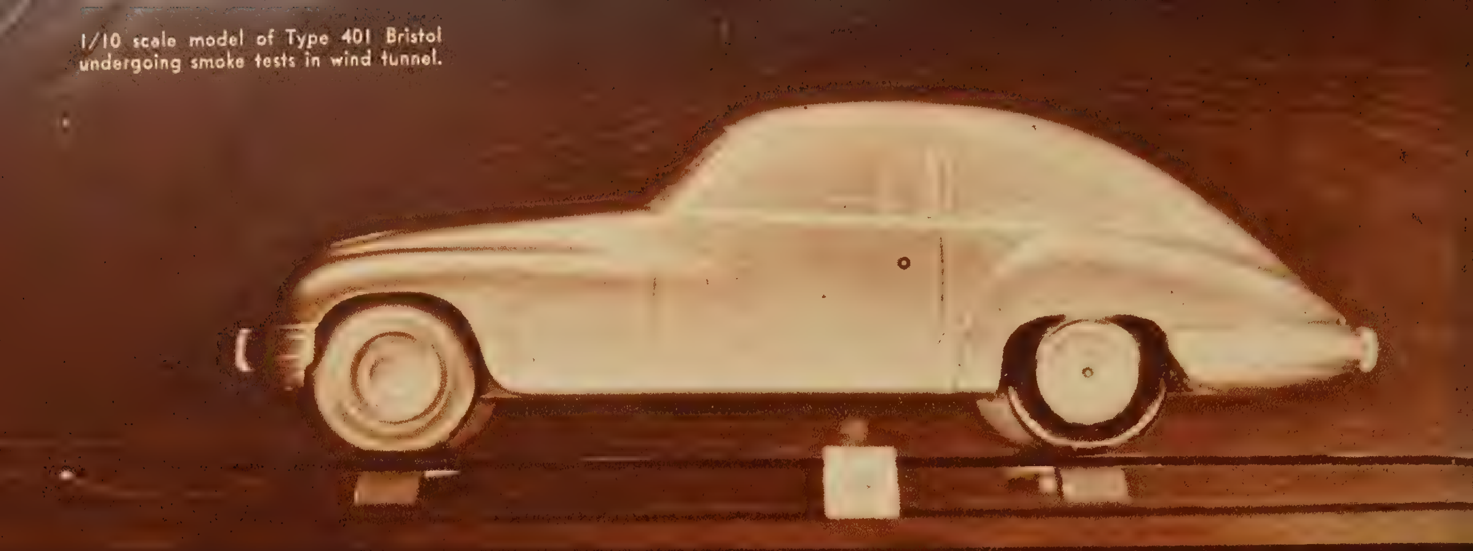


Below—Forward mounting.

Below—Steering gearbox fits neatly between clutch and cam drive.






1/10 scale model of Type 401 Bristol undergoing smoke tests in wind tunnel.

Bristol Wind Tunnel

Rapid progress in the development of wind tunnel testing technique as applied to car body design has been achieved by The Bristol Aeroplane Company Ltd. since it was announced, about a year ago, that preliminary experiments were being made.

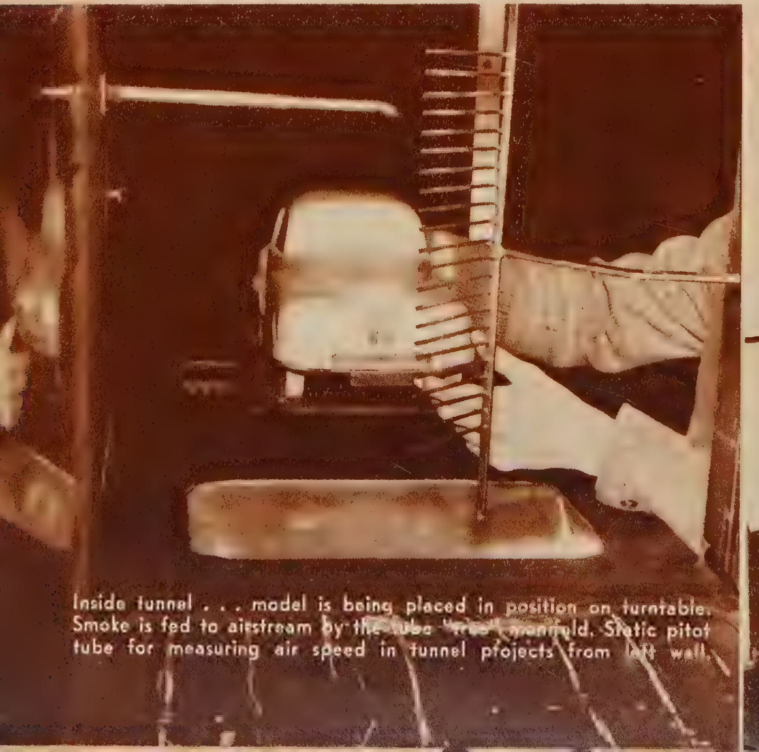
At that time the Company was experimenting with visual recording of air flow at varying speeds by photographing paraffin smoke drawn over car models in a wind tunnel made available by Bristol University. These experiments were so successful, and provided so much valuable information which would have been difficult to obtain by any other means, that Bristol decided to build its own wind tunnel, to be devoted exclusively to automotive body research.

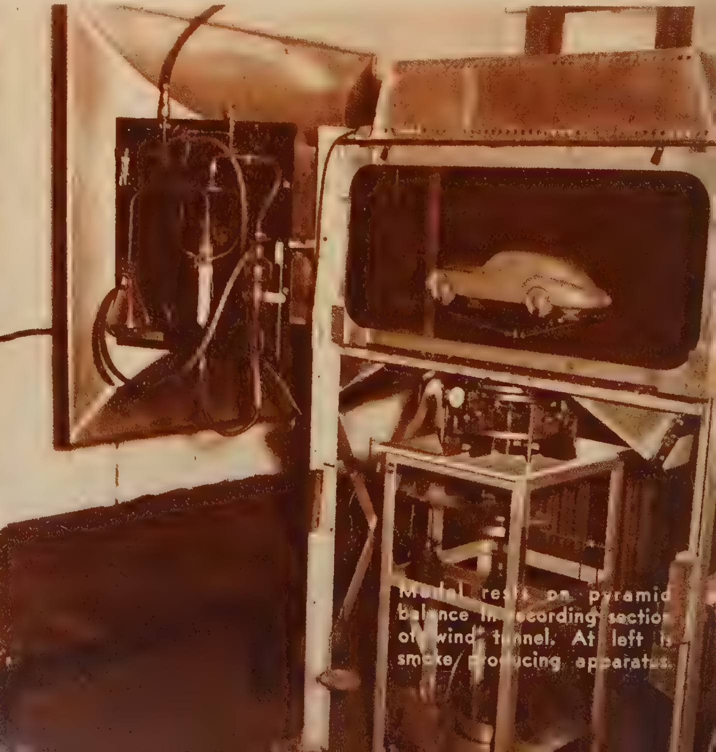
The new Bristol tunnel, details of which are now generally released for the first time, is designed for the aerodynamic testing of 1/10 scale models to determine drag and aerodynamic stability. It has an 18″ x 18″ x 42½″ long working section. Air is drawn thru the tunnel by means of a four-bladed constant chord fan, powered by a six hp electric motor.

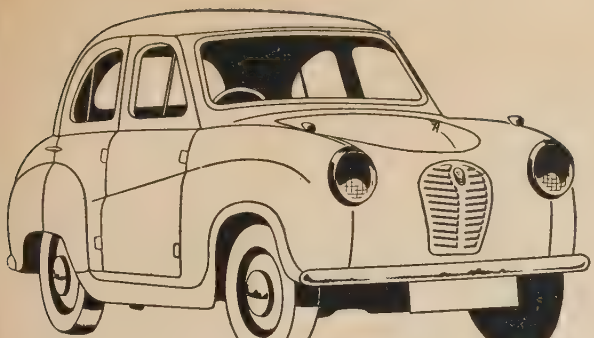
The most important mechanism is the pyramid balance on which models are mounted. By turning the turntable, models can be slowed at an angle to the air stream, thus simulating the effect of side winds. The various dials of the pyramid balance separate and measure drag, pitching moment, side force and yawning moment, while a pitot static tube ahead of the model in the free air stream measures air speed.

Smoke tests, altho more spectacular, form only a small percentage of research work. The reason is that smoke can only be used at lower speeds; at high speed the fine white lines of vapour tend to break up and disperse. Smoke is produced by using compressed air to force electrically heated kerosene and camphor thru a 10/1000″ aperture. From this point it is passed to a series of evenly spaced, 1/16″ diameter jet pipes which release it into the air stream. This method is particularly useful for checking the efficiency of the engine cooling system and the air duct entries for the air conditioning system.

Figures established by means of models are naturally not the same as they would be with full size cars exposed to side and head winds of similar velocity. But they have been proved consistent and since comparable figures have been established by the Type 401 in road tests, it is possible to correlate the actual drag of any future type of car. In this way the Bristol design team is able to examine the relative drag of various types of bodies and to make a sound and logical assessment of the aerodynamic qualities of models under consideration for possible future production.


Inside tunnel . . . model is being placed in position on turntable. Smoke is fed to airstream by the tube "tree" manifold. Static pitot tube for measuring air speed in tunnel projects from left wall.


Model rests on pyramid balance in recording section of wind tunnel. At left is smoke producing apparatus.



AUSTIN 7

Misc. Ramblings by the Technical Editor

It's new-model-time again! But careful reading of the announcements made up to this time reveal that changes are not even worthy of the term "face-lifts." The new 3.562 x 3.600, ohv Ford 6 will be one of the few really new cars, along with the Lincoln ohv V-8 and the Willys F-head six-cylinder . . . all three of which are eagerly awaited. Several more ohv, V-8 engines are scheduled for early next year and their advent will give a wider choice of powerplants for use in sports cars under 4½ litres in capacity. The dual-range feature for Hydramatic drive seems worth while and brings to mind an interesting gadget on the market known as the Third Speed Selector which fits earlier Hydramatic transmissions*

The dearth of interesting 1952 changes extends to England, where the only new cars are the Austin 7, the 3-litre Daimler, and the Vauxhall. Allard has announced the model J.2X (longer wheelbase, modified I.F.S.); Healey shows a clean sports job similar to the Nash-Healey, but equipped with the 3-litre Alvis engine and a 4-speed transmission. An item of special significance here is a clear weight saving of 50 lbs. due to use of an open drive shaft in place of the former torque tube. In this connection, not many people seem to realize that the 1935 thru 1948 Ford rear end assembly weighed 175 lbs. This includes the torque tube, propellor shaft, radius rods, spring, shocks, and rear axle complete, less brakes and wheels.

Power braking is now heralded as a new feature of several cars. The ballyhoo issued with this gadget stirs me to some very acid remarks. First, it is now fairly common knowledge that brakes are a notorious weak spot in already weak American passenger car chassis design. With the notable exception of Chrysler (and then only on the '50 and '51 Crown Imperial), practically every American car shows serious brake fade after 5 or 6 quick stops from 60 mph. Brake lining life, under average driving conditions is often less than 10,000 miles, seldom better than 25,000 miles. With all the emphasis today on "go," it seems apparent that some concentrated effort should be directed toward brake improvement. We cannot expect shorter stopping distances, since modern brakes approach 100% in this respect, but the use of brake boosters will certainly aggravate fade and short lining life. Secondly, the brake booster is not new at all, having been used over 20 years ago by Stutz, Duesenberg and Pierce-Arrow. The Pierce-Arrow employed a mechanical servo mechanism developed by Stewart-Warner, similar in principle to the earlier Rolls-Royce system. Stutz and Duesenberg had the Bragg-Kliesrath vacuum cylinder to augment braking power in a system copied from Clayton Dewandre.

Mention of Bragg-Kliesrath (now absorbed by Bendix) reminds me that foreign magazines are giving glowing accounts of a new "Bouchary" automatic clutch control. B-K had such a device in large-scale production over 20 years ago. It was used on all Chrysler-built products for 1932 and 1933, and was optional on almost all other American cars as well. A vacuum cylinder disengaged the clutch whenever the accelerator was released, and a clever pendulum valve controlled the rate of clutch engagement very nicely. All of which proves the old adage, "there's nothing new under the sun."

The new Austin 7 interests me very much because of the idea that low-cost, minimum transportation might well be a means of making it possible to own and operate two cars—the other being a fairly expensive sports car. Really low-priced cars can only be attained by employing a drastically simplified design approach. Merely scaling down a larger car does not reduce costs by any worth-while amount, because cost of materials (by weight) is a very small portion of the total cost of an automobile. To provide a rough example, the new Austin weighs 700 lbs. less than the A-40. At 10c/lb, the saving on material amounts to less than $70. There are virtually the same number of parts to machine, expensive gears to cut, etc., so the cost savings which might apply to the "7" could also be applied to the A-40 if it were designed similarly, and tooled for the same quantities. The new Austin 7, then, is a deluxe mini-car, offering excellent economy, in a small package.

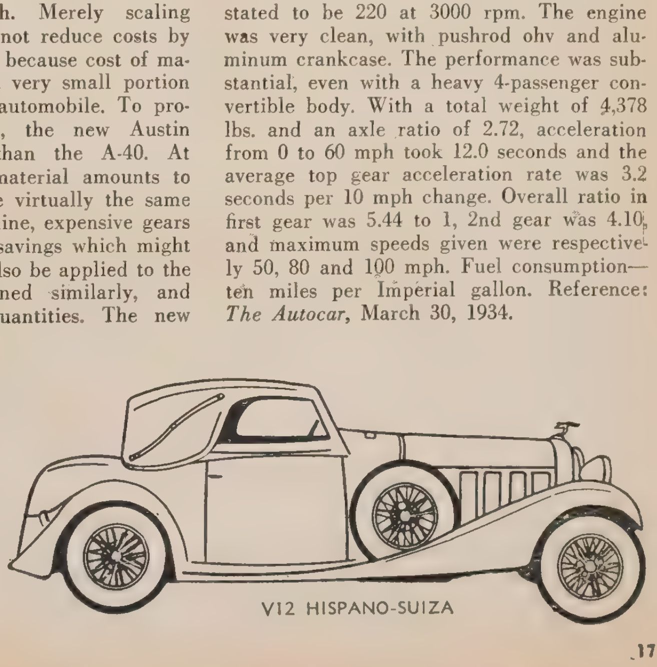
Rumors of a new sports car from a large established manufacturer in this country seem authentic. Is it too much to ask that this car have 50-50 curb weight distribution fore and aft, brakes that won't fade, a straightforward manual shifted 4-speed transmission, and steering that requires no more than 3 turns of the wheel from lock to lock? Right now there is a completely untouched sports car market for something between the price and performance of the MG and the Jaguar. Of course, there's the Morgan—but you can get one (no!), and the 1½ litre Jupiter convertible, which is too luxurious and hasn't enough performance to qualify for the term "sports car."

Interesting cars sampled recently include a Tatraplan and a turbo-supercharged Chevrolet. With 52 bhp from a rear-mounted, flat-four, air-cooled engine, the Tatraplan is a surprisingly good performer. The rack and pinion steering is excellent and quick. The extra weight of the overhung rear engine, coupled with a swinging-axle-type rear-suspension gives a very disconcerting oversteer effect which might not be objectionable with more experience on the car.

The Besasie turbo-supercharger made the 1951 model Chevrolet I drove really move. Speedometer optimism made a performance check impossible, but an actual 0 to 60 mph acceleration time of under 13 seconds seems a fair estimate. The complete unit replaces the stock intake and exhaust manifolds, and weighs 60 lbs.

If the present trend toward very large engines in sports cars continues, may I suggest the LeRoi 540 cu in. V-8. It develops a conservative 207 bhp at 3000 rpm and weighs only 1250 lbs. Seriously, it seems time that the amateur sport of sports car racing should halt the undesirable development of highly specialized machines which are no longer sports cars useable for every day driving, as well as try to place more emphasis on good handling and driver skill, rather than tremendous power-to-weight ratios. A limit of 4 litres maximum (244 cu in.), while not an ideal or completely happy solution, would be a simple and sane step.

For this month's "old timer" I have dug up the road test on a very unusual car, the V-12 Hispano-Suiza. This car was built near Paris and had an enormous engine of equal bore and stroke (100 mm or 3.94 inches). This gives 9,420 cc and the bhp output was stated to be 220 at 3000 rpm. The engine was very clean, with pushrod ohv and aluminum crankcase. The performance was substantial, even with a heavy 4-passenger convertible body. With a total weight of 4,378 lbs. and an axle ratio of 2.72, acceleration from 0 to 60 mph took 12.0 seconds and the average top gear acceleration rate was 3.2 seconds per 10 mph change. Overall ratio in first gear was 5.44 to 1, 2nd gear was 4.10, and maximum speeds given were respectively 50, 80 and 100 mph. Fuel consumption—ten miles per Imperial gallon. Reference: *The Autocar*, March 30, 1934.



V12 HISPANO-SUIZA

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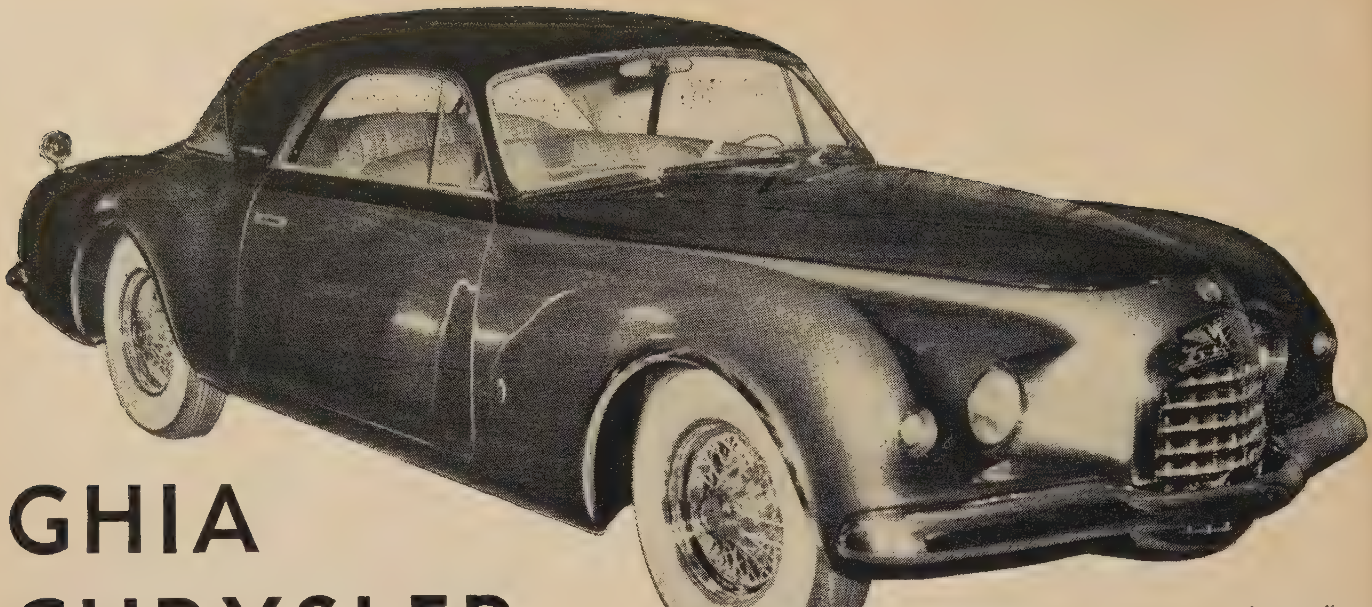
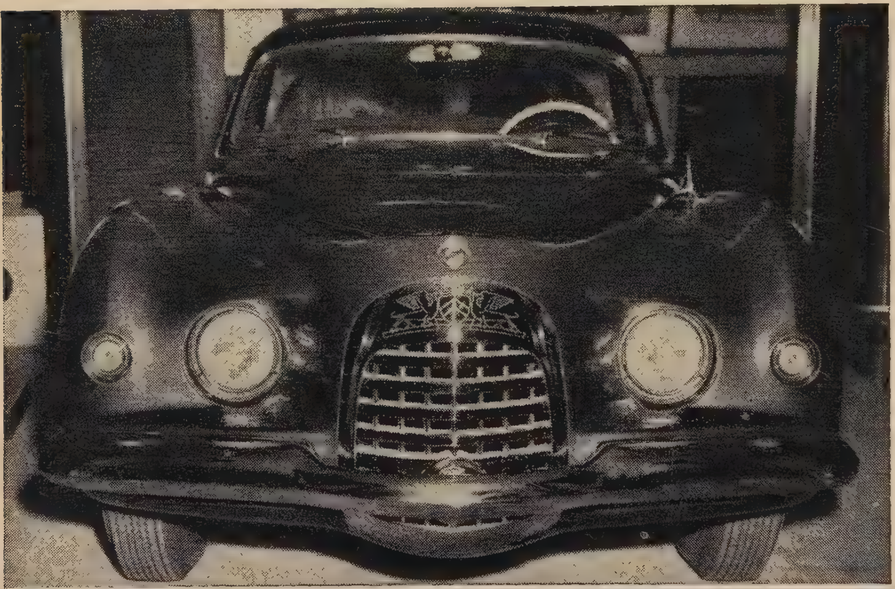
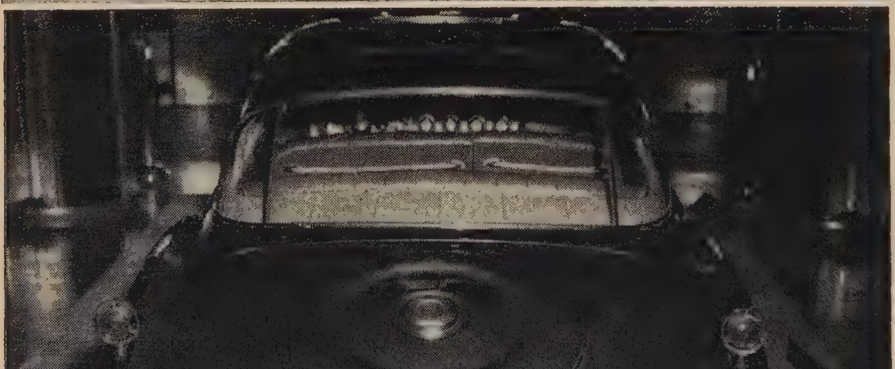
*Available from A. E. Nielson, 2129 N. Broadway, Los Angeles 13, California.



GHIA CHRYSLER





Much has been written about the two "experimental" cars which General Motors is currently publicizing . . . LeSabre; the controversial product of the Art and Color Section; and the Buick XP-300.

Now, Chrysler comes along with their version of a publicity car, the "K-310." Mounted on the 125½-inch wheelbase power-steering Saratoga chassis, the body was styled by Chrysler and executed by Ghia in Italy. The styling of this 59" high car is typically Italian with an American touch at the grille and in the hardtop with wrap-around rear window. Unlike the GM pair, which were special designs from the ground up, the Chrysler approach (available chassis and powerplant) seems more dealistic . . . with limited production a definite and practical possibility. On the other hand, the virtually identical (Buick-designed) chassis of the two GM cars are certainly more interesting from a technical viewpoint.

It is, however, in the engine department where the greatest divergence in basic thinking can be compared. GM is obviously going all out to sell two-figure compression ratios to the public. The GM engine (used in LeSabre and the XP-300) not only has a 10 to 1 compression ratio, but is supercharged by a roots-type blower. While the result is a slightly smaller and lighter engine, it certainly would cost a great deal more to produce in quantity, and the octane requirement of the engine became so high that a dual fuel and carburetion system was developed. With all the talk about the advantages of high compression for economy, the use of alcohol fuel, even tho used only a small part of the time, seems inconsistent. Alcohol costs around 55c per gallon in bulk lots, and an engine uses twice as much alcohol per mile as it does gasoline.

Chrysler's K-310 engine is basically their new 331 cu. in. V-8, with larger valves and ports, more carburetion (four!), and modified valve timing. A dual exhaust system alone accounted for a 25 bhp increase. (Note—this would not apply to the stock engine.) The compression ratio was raised to 8:1, and because there is some loss in compression pressure due to the special valve timing, the engine operates on readily available premium gasoline of 88 octane. The above changes give an output of 310 bhp at 5200 rpm, from a "cast iron" engine weighing 700 pounds without flywheel. In contrast, the GM engine, with 215 cu in., develops (supercharged, on alcohol/gasoline) 335 bhp—and with aluminum cylinder block and heads and a small bronze flywheel, weighs 550 pounds. Certainly the

K-310 engine weight could approach the GM figure by using aluminum.

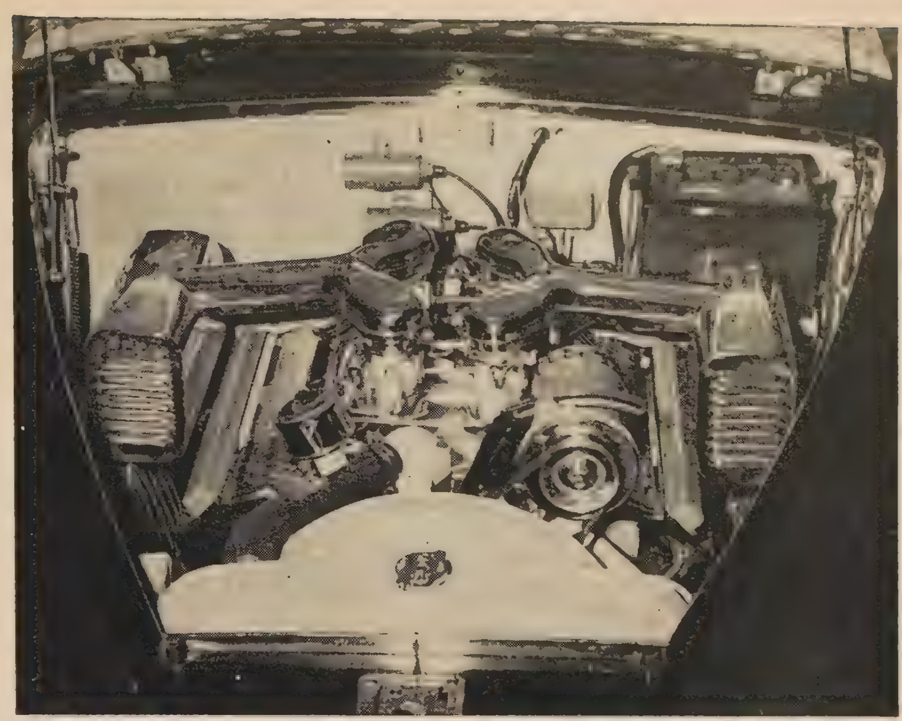
The plan to use knock-off hubs on the Chrysler K-310 is interesting and again illustrates the more practical approach of Chrysler engineers. Actually, the hubs were not avalable for the display model so the 17" Borrani wheels were bolted on.

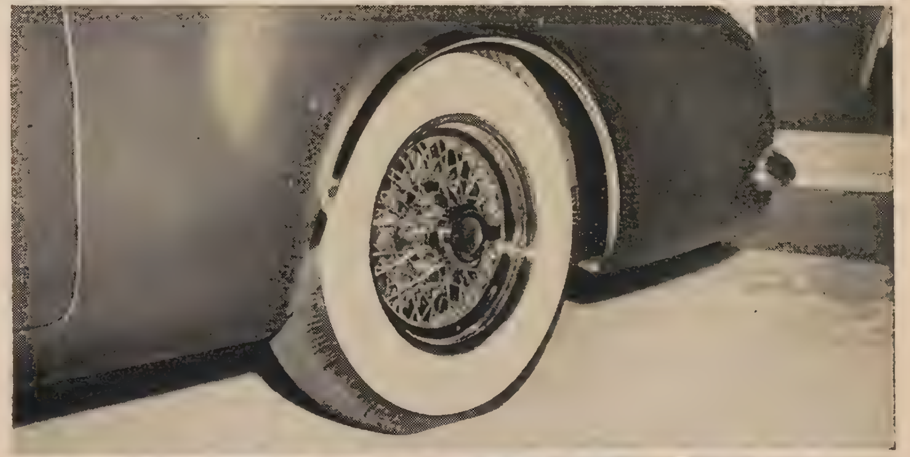
Notes and Comments

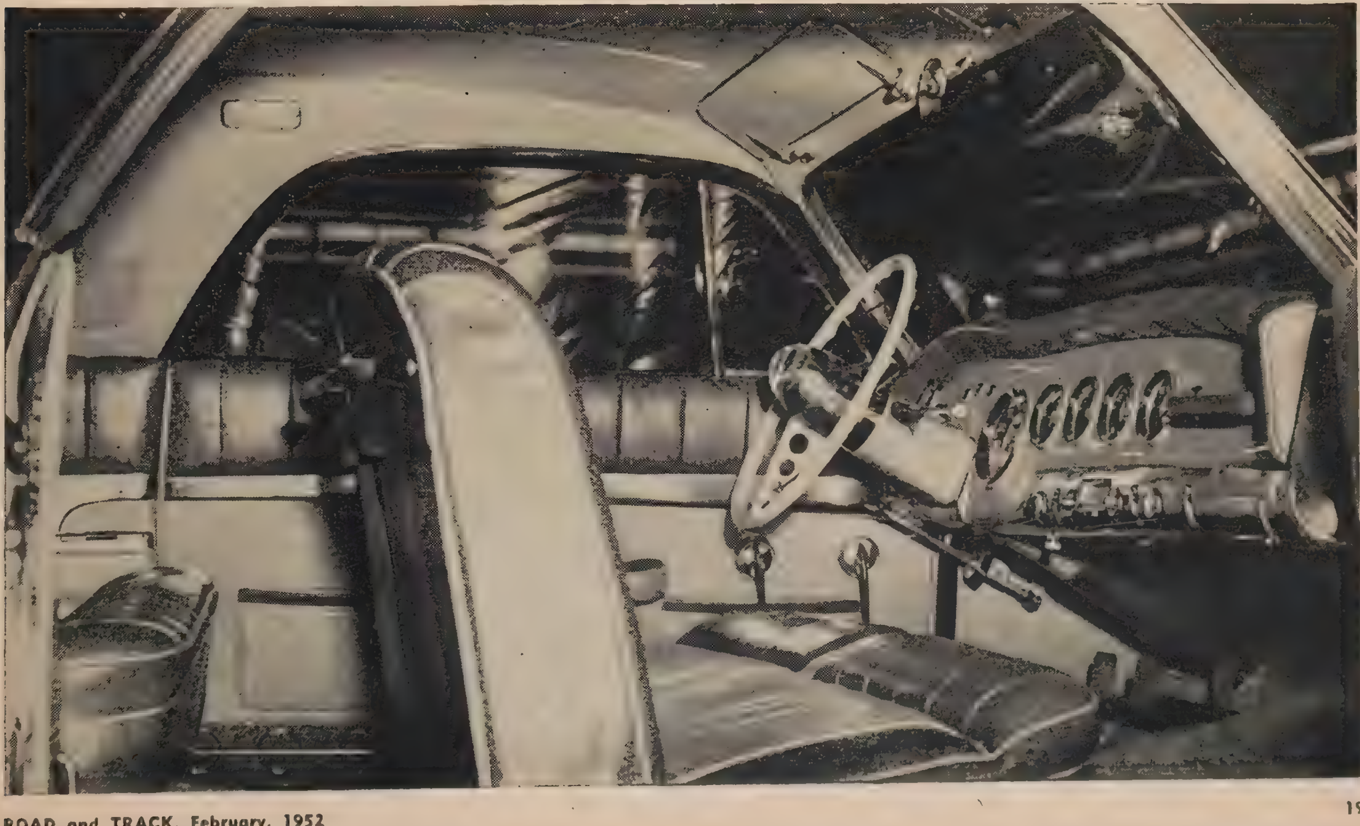
Car is well finished off . . . body looks heavy, but driveable. Finish is two-tone blue and very sleek. There's a heavy accent on bright metal, particularly on the wheels, wheel wells, tail lights, headlights and interior. Blue and gray leather upholstery is very swank and the front seats are tricky—they slide forward when the backs are folded down for rear seat access. Car is actually a six-passenger and the drilled out steering wheel spoke is a good touch . . . *looks* functional, anyway. Chrysler has incorporated some valuable hints from sports car practice—such as the crash pad and dash board assist grips. Whoever came up with the microphone-type tail lights will probably get an offer from National Broadcasting Company, but this type of "last minute" effort nearly ruins a clean design.

Readers will recall past references in these pages to the effect that Italian designers, after a brief flirtation with non-functional fender skirts, have refused to cover up the cleanest of all nature's designs (the wheel). Chrysler has made the wheel a chief motif in their Ghia car—the circle idea is carried thruout and is met with again and again, inside and out, i.e., chrome trim around the wheel openings in the fenders, wheel shaped instruments, lights, etc. Grille scrollwork is smart—and different. In fact, the entire bumper and grille treatment is the cleanest thing that's happened in this era of confused front ends. Car *is* distinctive, tho the engine placement is quite far forward (witness the overhung nose) . . .

Logical prediction is that this Chrysler (the pre-war Thunderbolt and Newport "super-cars" were marketed in limited numbers) *will* be available. Tho the Chrysler people call it their "Dream Car," all factors point to the Ghia Chrysler as a near-future actuality on the sales floors.







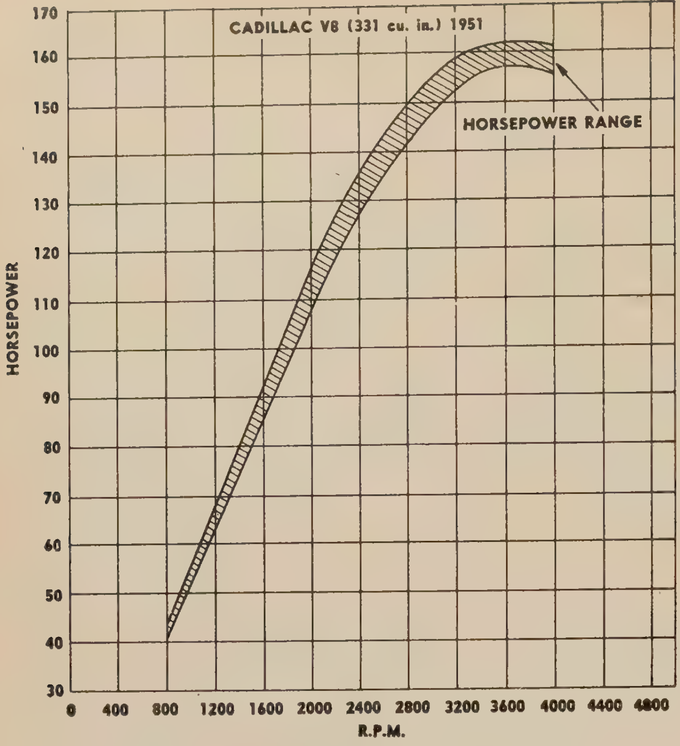


Figure 1

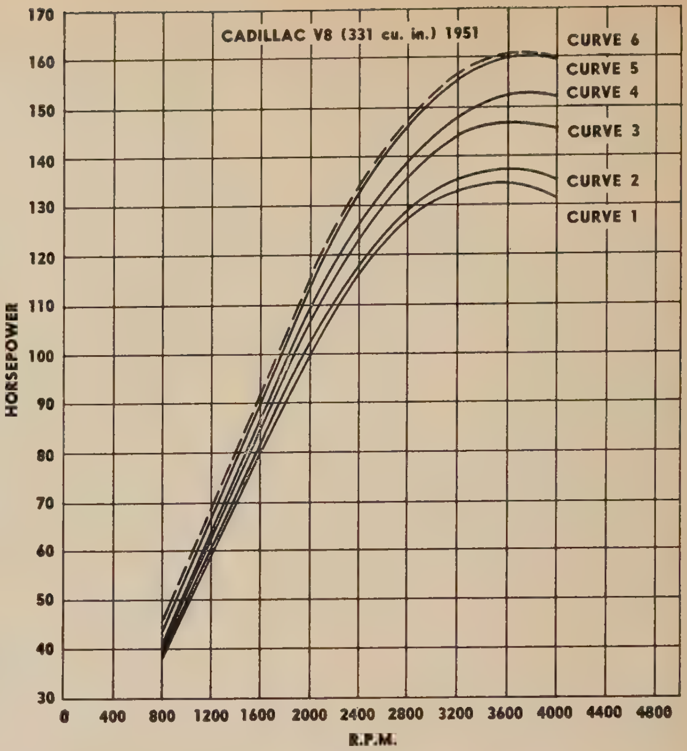


Figure 2

More About Horsepower

by Frank C. Burrell

The following is an attempt to clarify horsepower ratings as generally used in the automotive industry. Many text books and articles have been written which thoroly cover the many aspects and definitions of horsepower. Therefore, the following should not be construed as a "complete horsepower story" but only as a small supplement to existing information.

In determining the horsepower of an engine, several factors must be considered. The most important of these factors are: temperature, atmospheric pressure and humidity. For instance, the observed horsepower of a given engine will be higher on a day when the temperature is cool, the barometric pressure high, and the humidity low, than it will on a day with reverse conditions. Briefly, the reason for this is air density.

An automobile engine is basically an air burning engine and the weight of the air the engine consumes determines the power output. The greater the weight of air consumed, the greater the power output. The amount of air that an engine can consume in limited by volume of air intake. Due to atmospheric conditions, some days a cubic foot of air weighs more than on others. When the weather is cool, the humidity low and the pressure high, a cubic foot of air weighs more than on a day when the weather is hot, humidity high, and pressure low, consequently the power output of an engine will be higher on a cool day because the weight of air consumed will be higher. Therefore, to have a given engine rate the same horsepower regardless of weather conditions, a compensating or correction factor must be used by engineers in calculating brake horsepower from the observed dynamometer load to obtain comparative results.

Several methods of specifying horsepower have been evolved. Three of these methods are: (1) the General Motors Automotive Engine Test Code method, (2) the S.A.E. Gasoline Engine Test Code method, and (3) the A.M.A. specifications method. The latter is almost universally accepted for advertising purposes. All three codes have set up methods for determining a correction factor to compensate for variable weather.

GENERAL MOTORS TEST CODE

Under the General Motors Test Code, a correction factor has been established which takes into consideration the friction horsepower of the engine, the temperature (room and carburetor intake), the water vapor pressure (from humidity), and the dry barometric pressure. These factors are used so that all test data can be "corrected" to 100°F. carburetor air temperature (which represents a good average underhood operating temperature) and a dry barometric pressure of 29.42 inches of mercury (which is considered an average weather condition). Dry barometer is used so the variations caused by water vapor pressure are removed.

By correcting test data in this manner, the variations caused by varying weather conditions are eliminated, making it possible to test a given engine under different weather condiitons and still have the same results. This code was developed to give "practical" results—approximating actual car operation.

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FORMULA FOR CORRECTING DATA UNDER THE GENERAL MOTORS TEST CODE

$$\text{G.M. Corrected B.H.P.} = \left[(\text{Observed BHP} + \text{FHP}) \times \left(\frac{29.42}{B_c - e}\right)\sqrt{\frac{460+T}{460+100}}\right] - \text{FHP}$$

In which

BHP—Brake horsepower.

FHP—Friction horsepower.

B_c—Total barometric correction for temperature.

e—Atmospheric water vapor pressure (from humidity).

T—Observed carburetor air temperature in degrees Fahrenheit.

Furthermore, under the General Motors Test Code the common method of specifying horsepower is for the "As Installed" condition. This means the engine includes all accessories necessary to run the engine when installed in a car, which includes the air cleaner, muffler, tail pipe, fan, water pump, generator and automatic spark advance. Each accessory reduces the horsepower output by impairing the engine performance or by taking power from the crankshaft.

S.A.E. TEST CODE

Under the S.A.E. Test Code, a correction factor has also been established that takes into consideration the friction horsepower of the engine, the temperature (room and carburetor air), the water vapor pressure (from humidity) and the dry barometric pressure. These factors are used so that all test data can be "corrected" to 60°F. carburetor air temperature and a dry barometric pressure of 29.92 inches of mercury (considered to be Standard Atmospheric Condition). Naturally the lower air temperature and higher barometric pressure gives a higher "correction factor".

FORMULA FOR CORRECTING DATA UNDER S.A.E. TEST CODE

$$\text{S.A.E. Corrected B.H.R} = \left[(\text{Observed BHP} + \text{FHP}) \times \left(\frac{29.92}{B_c - e}\right)\sqrt{\frac{460+T}{460+60}}\right] - \text{FHP}$$

As with the G.M. Test Code, correction of data in this manner eliminates variations due to varying weather conditions.

Basically, the S.A.E. Test Code and the General Motors Test Code take the same variables into consideration, but there is a difference in "standard" for the correction of temperature and pressure. The S.A.E. Code corrects to 60°F. carburetor air temperature and a dry barometer of 29.92 inches of mercury, whereas, the General Motors Code corrects to 100°F. carburetor air temperature and a dry barometer of 29.42 inches of mercury. These differences between the two codes causes the S.A.E. horsepower to be about 5% greater than the General Motors value.

Furthermore, the S.A.E. Test Code specifies that when the test is to be made of a stock engine, all parts of the engine must be stock and that only parts essential for engine operation need be used. This can be interpreted in many ways. For instance, the generator, muffler, tail pipe, air cleaner, and fan could be left off and the engine could still be operated for test purposes. However, the S.A.E. Code does state that accessories on the engine during test are to be listed. Therefore, due to both the difference in standard atmospheric conditions and the omission of accessories, S.A.E. maximum horsepower will always be greater than General Motors maximum horsepower for any one engine.

A.M.A. SPECIFICATIONS

Under the A.M.A. specifications, the horsepower rating is "to be based on actual performance corrected to 60°F. at sea level (dry barometric pressure of 29.92 inches of mercury) with standard fuel", which is the same as S.A.E. Test Code conditions, therefore, the S.A.E. correction is used. The A.M.A. specifications also state that the maximum brake horsepower with standard accessories should include "those standard accessories needed for normal operation including fan, generator, starter, air cleaner, muffler, manifolds, fuel and water pumps". A.M.A. does not specify the requirements for maximum horsepower with "bare engine" (the generally accepted advertising figure), consequently, the "bare engine" horsepower specifications permit a wide range of possibilities. For the "bare engine" condition, the spark advance is usually manual instead of automatic, which permits the use of minimum spark advance for best power.

Under these three methods, it can be seen that the specified horsepower of an engine can be extremely variable, depending on the method of correction used and the accessories on the engine when tested.

Altho a "bare engine" horsepower rating is generally used thruout the industry for advertising purposes, it is not a practical figure for use in engineering comparative testing. As previously mentioned, the common method of specifying horsepower under the General Motors Code is for the "As Installed Condition". For this condition, the fan, muffler, exhaust pipes, and air cleaner are left on the engine. The difference between "As Installed" horsepower computed according to the General Motors Test Code, maximum horsepower computed according to the S.A.E. Test Code and A.M.A. horsepower is shown for a 1951 Cadillac production engine, on *Figure 1.* Losses due to accessories are also shown on *Figure 1.*

In addition to the previously mentioned factors of weather and accessories affecting a horsepower rating, several other factors should be mentioned. Due to slight differences in machining tolerances, cam timing, variation in port size and spark advance (all due to slight manufacturing variations) the power output of several engines will not be exactly the same. Another factor to consider is friction. A new engine has more friction in the working parts because they have not "worn in" or "seated" themselves. Normally, after 2000 to 3000 miles the friction becomes less thereby giving higher power output. As mileage increases, the power output may decline due to carbon deposits, worn piston rings, poor valve seating, and ignition deterioration. *Figure 2* shows a horsepower range of several production engines in good condition. The range is due to the above mentioned factors and shows the high and low. Actually, most of the engines would produce the mean figure.

As can be seen from this discussion all of the test conditions must be known before sound comparisons can be made of any given horsepower ratings. As would be expected, the automobile manufacturers advertise the highest rating permissible, which is the A.M.A. code.

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TECHNICAL CORRESPONDENCE

OLDS 88 TOP SPEED

In your October 1950 issue you gave a list of the major U. S. autos and the corresponding top mph. You mentioned that the Olds 88 had officially clocked 100 mph at the 1950 NASCAR Daytona Beach trials. Also read of the Olds 88 winning the 1950 Mexican Road Race. In view of your information and experience, do you think that the Olds 88 under perfect conditions and in perfect mechanical adjustment will clock 100 mph?

The other leading U. S. autos, performance-wise, appear to be the new Chrysler V-8, ohv Cadillac, Lincoln V-8, Studebaker V-8, Hudson Hornet, Nash ohv, and Packard. What do you believe to be the top mph ratings of each?

Charleston, W. Va. C. L. Pelzel

I do not believe that a strictly stock Olds can average 100 mph over a two-way timed run. Usually, they run 94 to 96 mph, and that extra 5 mph is tough, requiring about 16 more honest horses. Dual mufflers ought to just about do it, however.

By now you have our road test on the Chrysler Saratoga, which is, of course, the fastest stock America car. The Cadillacs still do around 97 mph; the Lincoln V-8, 98 mph; Stude V-8, 94 mph; Hornet, 98 mph; Nash ohv, maybe 92 mph now, and the big Packard, 96-98 mph. These and the Olds are all close together and condition of the car, outside temperature, and wind, all make accurate comparison difficult. As you know, two identical cars of the same make often show considerable variation in top speed.—Tech. Ed.

FORD STEERING STINKS

Could you give me some formula for improving the soft springing and under-steering in my 1951 Ford, which, for my money (especially the steering) . . . stinks. Please do not advise the switch to an MG because that I will do next year in spite of my wife's protests.

Habana, Cuba J. L. Hevia

Several people have written that a switch to Monroe shocks on their Ford gave a firmer and safer ride. These are made by the Monroe Auto Equipment Company, Monroe, Michigan.

Understeer can be reduced by experimenting with tire pressures per Technical Correspondence for November 1951. Use less pressure in the rear—21 psi is recommended by Ford, and try 30 or 35 psi in front if necessary.—Tech. Ed.

SUSPENSION AND POWER LOSS

What is the weight of the Chrysler ohv V-8 engine? . . . I am quite new to the sports car game and not clear about certain suspension types, primarily the half swing front axle and the deDion rear end. The limited slip differential is also new to me.

In a letter on page two of the September issue, Mr. W. B. Morgan states that 200 hp will produce a .4g acceleration in a 3000 pound automobile, assuming his given conditions. However, no account was taken of losses in the power train, which I understand can be quite high. I should like to know the approximate efficiency of a conventional power train—clutch, gearbox, drive shaft, and differential—and also of a torque converter type power train. It would seem that Mr. Snyder could well use a higher hp engine in order to obtain 200 road hp.

Endicott, New York Tom Oglesby, Jr.

Our information is that the Chrysler V-8 with all accessories weighs the same as a Cadillac—700 lbs. However, the Chrysler engine does not include a flywheel or clutch, so add about 50 lbs.

The simplest half swing axle example is the Allard I.F.S. Take a cross spring Ford axle and saw it in two at the middle. Pivot each of these "loose ends" to the frame and you have it.

The deDion is more difficult to describe and is well illustrated on pages 14 and 15. Briefly, it's just an independent rear suspension that isn't independent because each wheel is connected by a "dead" axle tube, offset and curved as required to miss the frame-mounted differential.

Losses in the power train are not nearly as great as many people seem to believe. Not more than 5% is the usual accepted figure. However, if advertised bhp is used, it is normal to deduct 15%. This extra 10% is to take care of engine accessories, muffler loss, underhood temperatures, and optimism. A torque convertor is another matter, and 15% loss in this unit alone is the best performance. Under some conditions, the losses are much more. Hydra-Matic is almost, if not, equal to a conventional transmission because the fluid flywheel slips very little above 5 mph, and when in high, all the gears turn as a solid "hunk."—Tech. Ed.

CHRYSLER V-8 HOP UP

What would you recommend to hop up a 1951 Chrysler New Yorker V-8 (no Fluid-Torque drive)? What would make a Chrysler transmission shift faster?

Madison, Wisconsin Ken Williams

The neatest trick on the new V-8 Chrysler is to use ohv Cadillac con rods and pistons. This gives a compression ratio of 8.5 to 1 and may require water-alcohol injection to avoid setting the spark retarded. However, you can try it first without the additive, but using premium fuel, of course. Dual mufflers are a must on a V-8 and help a lot. I like the big Buick straight-thru mufflers, because they are quiet and easily replaced.

I assume you have the M-6 transmission with Fluid Flywheel, and I do not believe it possible to rework it to a straight four-speed manual shift. The earlier (1941) vacuum shifted model had some possibilities but the later job is sturdier as required by 331 cubic inches.

GEARS OR HEAD FOR '50 PLYMOUTH

I have a 1950 Plymouth and would like to know which would be the best—a high compression head or a high speed rear; also what gear ratio is best for a '50 Plymouth.

I have heard, tho, that high compression heads burn valves. Would you please advise me on which one to use.

Hamburg, N. J. Donald E. Touw

You ask, "which would be best," a special head or high speed gears, but you failed to specify—best for what? You see, this hop-up business is a sort of compromise. Do you want more top speed or more acceleration? If you want to compromise and have both, the present 3.9 axle is about right, and raising the compression ratio will give better acceleration, better economy, and maybe 2 or 3 more mph top speed. If you use the higher compression and change the axle to a 3.73 ratio, you will lose a little on acceleration but get better mpg and top mph than with the 3.9 axle.

High compression heads do not burn valves. Too lean a mixture, or running with wide open throttle, or a combination of the two is the principal cause of burned valves. Actually, running at the same speed and load, a higher compression ratio gives cooler running—contrary to what the big oil company ads would have us believe.—Tech. Ed.

A-40 GEARBOX IN BLOWN CROSLEY

I own a 1951 Crosley Super Sports with the 10:1 compression ratio, factory equipped with a Thompson Vitameter. I tentatively plan to equip the car with roots-type blower and an Austin A-40 4-speed synchromesh transmission. I'd like your opinion of these ideas.

Athol, Mass. Norman E. Tandy

Your idea of using the Supercharger and the A-40 transmission on the Crosley sounds very good, but there will be problems. First, it's quite likely that you will have to reduce the compression ratio or burn 25% benzol. The transmission might fit with only a thick adapter plate (made up special), but you more likely will need a special casting, which will be expensive.—Tech. Ed.

MORE SNAP FOR NASH AMB

What is a good way to step up a 1950 Nash "Amb" 6 ohv engine? Would like more pep.

Des Moines, Iowa J. H. Hulse, Jr.

Contact Nash Motors for the Nash-Healey aluminum 8 to 1 head with two carburetors. IF they will sell this unit, it's your answer.

Failing here, you can have the head milled—say, .060", use the Newhouse 2-carb. manifold, and if you want to really go, use a hot cam.

Either way, you will probably like the car much better on the highway and find idle a little troublesome if you use the cam. The two carburetors also require careful tuning for smooth city driving.—Tech. Ed.

TIRE PRESSURES

What is the proper air pressure for U. S. Royal - Air Ride tires—size 7.60-15? There is considerable controversy here about this subject. Some say 28 psi for good mileage. I would appreciate your opinion on the matter.

Farmville, Virginia M. P. McClintic

To answer your question on correct tire pressure would really require a tire engineer—which I certainly am not. The tire manufacturers, as well as most of the automobile companies, have been rather bitter about the tendency of the public to use more than 24 psi in their E.L.P. tires. There is no question in my mind that higher pressure (up to a point) gives much better mileage. A tire is designed to be virtually flat at the area of contact with the road. Therefore, both the load on the tire and the air pressure used can affect this.

If you do not object to the squeal, a good compromise is to use 24 psi around town (for comfort) and 28 or 30 psi on fast trips. I have used 30 psi on two cars with 6.70-15 tires and find that it rides nearly as well with far less tire squeal. Tread wear appeared well distributed with a slight bias toward extra wear on the shoulders as they are supposed to do. I have seen cars with bald tires at 23,000 miles, running 24 psi. The tires on the first car ran 45,000 miles (on 5 tires) and my new Chevrolet now has 15,000 miles with very little wear showing. I am firmly convinced that, except for the very conservative driver (who is an obstruction on street and highway), it is advisable to use 28/30 psi in E.L.P. tires, if you want reasonable tire life.—Tech. Ed.

FLIP-BOTTOM BUICK

Recently followed thru with some improvements on my '38 Buick Century Roadster. A set of 8:20-15 Goodrich whitewalls; coil springs were cut to lower the rear end four inches; engine was honed, increasing the bore by .015; aluminum pistons were fitted with chrome plated compression rings; the head was milled .0625 to produce a 7.7 compression ratio; Thompson roto-exhaust valves seat themselves on frozen-in tungsten valve inserts; and a Thompson Vitameter adds the necessary high octane to the gas mixture needed by the engine under full load.

The car's Borg-Warner clutch linked to a 3.9 rear end gets the 3700 pound car into motion fast enough to hold the tails of the several '51 Chrysler New Yorkers I carefully road tested with.

My only gripe is that this buggie darn near turns over when I move around sharp curves. I try braking before swinging into the turn and accelerating around and out of it . . . but it seems no great advantage is achieved.

Other Buick owners I'm acquainted with have similar dissatisfaction with the automobiles' cornering. Assuming shocks to be in excellent condition, as mine are, what improvements can we Buick owners take to steady these flip-bottom, coil-spring rear-ends?

Brooklyn, N. Y. Ira Robert Malek

It's fantastic, but possible, to strip that '38 down to the bare frame and install a '37 frame with leaf springs in the rear.

You could try adding a set of adjustable (from dash) shocks from a '32 Buick or Cadillac. Another try would be a rear torsion bar stabilizer from a Buick of about 1934 or '35. Also suggest experimenting with tire pressures —it can make quite a difference. I am wondering why 8.20-15 tires? You can use the '38 special 16-inch wheels on this car with, say, 7.00 section tires and it would handle better.

One last try—in removing coils to lower the rear end, you also increase the spring rate or stiffness. An I.F.S. car is usually a little softer in front, but you have made it (in effect) much softer because the rear end is stiffer. This throws more of the tendency to roll onto the soft front end, so a stiffer torsion bar stabilizer in front seems indicated.

However, these are all poor ideas, and actually there isn't much you can do with a chassis of poor basic design.—Tech. Ed.

REV-UP BEFORE SHUT OFF?

I have an "everyday use" car and an XK-120 Jaguar which I use every other day or so because the weather in Caracas has been very rainy for the past two years.

I read somewhere that as soon as a car stops, corrosion starts on the cylinder walls and that a car which is used everyday keeps in better shape than one which is used intermittently, at least for the same mileage. Is that true? Is there not a way of taking care of such corrosion? The English talk a lot of "revving" their engine before stopping.

Caracas, Venezuela, S. A. Juan M. Bayot

If you use your Jaguar every other day, I don't think you have a thing to worry about on the score of cylinder bore corrosion, particularly in a warm climate. Most bore wear is generally conceded to take place during a cold start. At that time the oil doesn't flow too well, and use of the choke causes liquid fuel to wash off what little oil is on the bores.

A precaution that might be slightly beneficial would be to duplicate those conditions which, in a race engine, cause the plugs to "oil-up." This means, just before shutting off, to rev up to say 1500 rpm, no load, and simultaneously to switch off and release the accelerator. This produces a high vacuum, which tends to pull more oil up on the bores for better protection while sitting idle.

However, it's difficult to prove that such procedures do any actual good.—Tech. Ed.

NOTE: *Due to the great volume of correspondence being sent to the Technical Editor, it has become necessary to limit this service to subjects which have not already been published here or in popular books on the topic. Readers desiring general "hop-up" information should consult any of the several books on this subject available from Road and Track's advertisers.*

4-SPEED GEARBOX FOR CROSLEY

Is there a Cotal electric gearbox which will fit the Crosley engine? This is in reference to an article I read in Road and Track a few months ago.

Information on the adaptation of a four-speed box to the Crosley engine would be appreciated.

Valley Stream, N. Y. — F. J. Dominianni

The reference to a 4-speed gearbox (in Road and Track), for the Crosley, had to do with a car being built out here by Morgan Sinclaire. This is not a Cotal but an Armstrong-Siddeley make of pre-selector unit as built for the early Riley "9". Morgan bought bought this transmission (re-built) from H and A Engineering, who advertise under "Gearboxes" in the classified section of British magazines. He had to do some adapting to use it and says it's rather heavy. He also says an ENV-built transmission for the MG would have been better. Morgan also drives a 4-seater Allard (Mercury) equipped with a 4-speed Cotal box he ordered direct from Allard. This bolted right on . . . but cost around $400.

Ernie McAfee (Hollywood) is building a Crosley Special, using an MG gearbox. They made up a solid block of aluminum about 1" thick to do the adapting job. Other possibilities that require adapting are the Fiat 500 or the Austin A-40 box.—Tech. Ed.

PORTING OLDS 98

I have a '50 Olds 98 with a Thompson Vitameter, Mallory dist. and coil, and dual exhaust. Now I want to add dual carburetors and Grant rings. Would it be all right to have my heads ported to take care of the carburetors and raise my compression to 8 to 1?

Another trouble is . . . coil rear springs. They hit bottom and sway too much.

Bayside, L.I., N.Y. — Ralph Lanza

Since you already have Vitameter, I feel it will be quite satisfactory to use 8 to 1 compression ratio on your Olds 98. On the porting operation, it is doubtful whether it would be worth the cost and risk. I'd suggest a moderate clean-up and port-polishing job, and be sure the ports in the heads match those of the intake. Olds intake valves are quite large and will accommodate the dual intake manifold OK.

No definite suggestions on your rear-end sway problem. That feature is engineered (?) into the car.—Tech. Ed.

SWING VS. SOLID AXLE

The swing axle front is superior to a solid axle in keeping the wheels on the ground, why? Gyroscopic action should be a little less on solid axle, pivot is farther from wheel. Unsprung weight would be less on the swing axle, half the weight of the axle itself would be supported by the frame at the pivot. If the swing axle front is better than a solid front axle, then why is the DeDion rear end (which has the wheels mounted on a solid axle) superior to a swing axle rear, like the Alfa Romeo?

Peoria, Illinois — Harold E. Fatland

The main advantage of the half swing over the solid axle is the very much smaller "center of percussion" effects on the half swing. The "center percussion" on the half swing assembly is nearly in the plane of the tire—while that of the solid axle is about ¼ of the tread width inboard. The results are a kick back on the opposite wheel (of the solid axle) tending to unseat the front suspension. No such effects are present on the half swing.

For the rear axle applying power a very accurate wheel geometry is more important than the above.—C. Manning

MANNING SPL. QUESTIONS

With reference to the article "Building Your Own Sports Car" by Mr. Charles G. Manning, in the September issue of **Road and Track,** it looks as tho this is the article that many "Specials" builders have been waiting for . . . will it cool in traffic, is the type of wheel used as strong as the later types?

Oklahoma City, Okla. — Thomas Maguire

In regards to cooling—the car ran at Palm Springs Road Race with a steady 175° water jacket temperature until the radiator cap was lost and a rag substituted. The rag would not stay put, however, and forced eventual retirement. A Ford "eddy current drive" fan can be installed, if necessary, but has not been needed. The '36-'39 Ford wheel is both lighter and stronger than the later models, but neither will give trouble on a car with a maximum gross weight of less than 2000 pounds.—Tech. Ed.

MANNING SPECIAL PLANS

"Building Your Own Sports Car" by Charles G. Manning was very interesting . . . It would be a great thing if **Road and Track,** or Mr. Manning, would make available to we home builders a set of blueprints or working drawings.

Olathe, Kansas — George H. Burns

Prints are available of what Mr. Manning calls his combination "Layout & Assembly Drawing." It is a ⅛ size drawing of his frame, to which have been added the other chassis components and their mounting brackets. The price of these plans is $2.00 (to cover reproduction and mailing costs).—Tech. Ed.

MANNING'S SYMBOLS

Reference—Road and Track, October 1951, Vol. 3, No. 3, page 15, "Building Your Own Sports Car".

In the calculations, what is "CR"? Also HF - H - F - FR - HR - ATH - S. I would appreciate knowing the derivation of the above.

Highland Park, Illinois — P. M. Hensley

I regret the omission of the table of symbols in the appendices and will include it below:

TH—Forward thrust of rear tires
CF—Roll rate front suspension (# in/deg)
CR—Roll rate rear suspension (# in/deg)
FF—Side force carried by front suspension
FR—Side force carried by rear suspension
A—Acceleration (ft/sec^2)
W—Weight
HF—Roll center height front suspension
HR—Roll center height rear suspension
H—C.G. height above roll axis
D—C.G. height above ground

—C. Manning

LIMITED SLIP DIFFERENTIAL

In the **Road and Track** Sept. '51 "Building Your Own Sports Car" is a good article, but why torment us by bringing in the gadget called "limited slip differential." I would like a photo or where to get one, or better still, an explanation of the words, such as number worm gears and ratchets in it.

Why don't more race cars use disc brakes?

Victoria, B. C., Canada — L. V. Dawkins

There is no such thing as a true "limited slip differential." The Z-F model used by Mercedes and Auto Union was probably the closest approximation.

The July 1951 issue of the S.A.E. Quarterly Transactions describes all types ever built. The "Timkin High-Traction" differential is undoubtedly the most practical and the "Mack Power Divider" (similar to Z-F), probably the best. best.

"Thorton No-Spin Differential" is an approach to the problem. This part allows either wheel to "over-run" but neither wheel to "under-run." It is evident that this characteristic would be a serious disadvantage in a sharp corner, as the inside wheel would do all the driving till it was broken loose (spins), then the outside wheel instantaneously picks up the thrust. This impact couple of approximately 5000 lb/ft applied to the car would certainly put you in the hay bales. However, for straight-line acceleration, it is ideal.

Disc brakes, due to their necessary configuration, are very difficult to cool. They are used to best advantage where space is at a premium—not where heat dissipation (from repeated use) is the major problem.— C. Manning.

INFO ON THEORY OF CORNERING

I wish to commend you on your excellent article "Building Your Own Sports Car" in the September and October issues of "Road and Track." This is the first article I have seen on the theoretical treatment of cornering. Is there any other published work on the subject?

Port Credit, Ontario, Canada — Nelson D. Durie

In regards to other articles, I can only suggest "Road Manners of the Modern Car" by Malice Olley, which appeared in February 5 and 12, 1947, issues of "The Motor," an English publication. Also, "Roll Angles" in October 1951 of "Automobile Engineer." Here, again, no attempt is made to evaluate desirable and undesirable characteristics of the different suspension types. It is really remarkable there is so little published material on such an interesting subject.—C. Manning.

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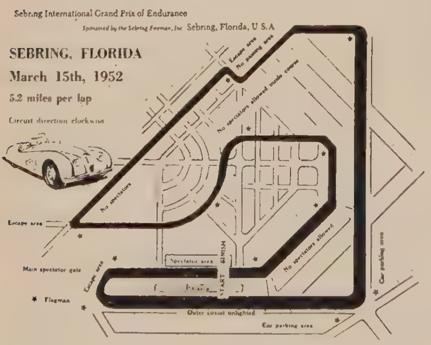
Chuck Manning made best time of day at Sandberg in his Mercury Special. Jack McAfee won his class driving John Edgar's blown MG TC.

CLUB ACTIVITIES

SEBRING INTERNATIONAL GRAND PRIX

Alec Ulmann writes in the latest on Sebring (officially named The Sebring International Grand Prix of Endurance), sponsored by the Sebring Firemen, AAA sanction and the brain child of the late beloved Sam Collier.

To be held March 15, 1952, the contest promises to be as exciting as any event ever held in this country. Jaguar Ltd. has officially entered a team of cars . . . . to be driven by Moss, Walker and Whitehead, and Ferrari is entering a 4100 cc "America" to be driven by Luigi Chinetti.



The race this year which will follow pretty closely the Le Mans rulings will be the first American event to be run on a full-fledged international basis.

Ulmann hopes that, with our own Cunninghams definitely entered and the possibility of Nash-Healey participation, "other and more ponderous Marques from up Detroit way might overcome their shyness and come up with a sports car . . . . capable of holding (its) own." And Alec also advises making hotel reservations early.

HENRY J CLUB

A bit of confusion resulted in the first rally of the Hank J outfit—which was to start in Glendale and end at the scene of the Apple Valley Road Races, which were transplanted to Del Mar. However, everybody is real happy because they got to drive their Henry Js—whether they went to one place or another.

AUTO MANIACS OF AMERICA

Those of you interested in American automobiles, past, present and future, would do well to join up with this club. Its monthly bulletin alone is well worth the price of admission . . . listing as it does a vast array of books, brochures and pamphlets from the past and present of American motoring (and some foreign). Incidentally, A.M.A.'s annual convention in Detroit was the biggest ever. For full details, write the club at 2336 Dime Building, Detroit 6, Michigan.

MG CAR CLUB

Congratulations on putting out a very informative and neat bulletin ("Tach Readings") from the Midwest Center—containing some breezy articles on subjects like "What does MG stand for?" and news of other regional MG Car Club doings.

INLAND SPORTS CAR CLUB

Things are looking up in the Northwest. Time was when the lonely sports car owner did all his "bench driving" solo. With the formation of the new Inland Club, a welcome is extended to all enthusiasts in the Spokane region by the Secretary of the club, A. C. Rivas, 2020 Monroe, Spokane, Washington.

DENVER SPORTS CAR CLUB

It's difficult—keeping up with the new clubs. Here's one from Denver and one of the best things about the club is you needn't own a sports car to join. All you need to have is a liking for that breed. Write or phone Preston Marble, Import Motors, 2610 Alameda, Denver, Colorado.

500 CLUB OF NORTH AMERICA ORGANIZED

Forty-eight potential members of the 500 Club of North America met December 5 for the purpose of electing officers of the National and Southern California groups. Those elected to the National Executive Board were Harry S. Morrow, President; Dick Van Osten, Vice-President; L. Braxton Tabor, Secretary; L. W. Cannon, Treasurer; and Roy C. Horine, Activities Chairman.

The Southern California Group officers are to be John P. Cannon, Group Executive; Harry G. Close, Secretary-Treasurer; and James M. Seely, Activities Chairman.

Purposes of the club are to promote interest and coordinate activities in the building and racing of 500 cc (30.5 cubic inch) race cars.

General specifications of these cars were given in the December 1951 issue of **Road and Track** magazine.

A number of the members have cars in various stages of construction, and it is believed actual competition will be keen for the 1952 racing season. Complete information on membership, rules, construction, and formation of local groups may be had by writing the secretary, 500 Club of North America, 2708 West Magnolia Blvd., Burbank, California. Dues are $10 per year.

NEW SAN FRANCISCO CLUB

Foreign car owners in the San Francisco (and South) area will be interested in a new club—open to all foreign car owners. First rally was held December 9th, with a turnout of 70 cars, and movies of Grand Prix racing followed the presentation of the Booby Prize—a model of a Stanley Steamer. Write club Secretary Al Yeagle for information, 217 Mosswood Way, South San Francisco, California.

FOUR CYLINDER CLUB OF AMERICA

News has just come thru that a big step has been taken by the four-bangers. They're going national . . . officially. President John Foster was unanimously elected national director and big plans are on foot. Write John about the new badges, sweater insignia, decals and so on . . . (201 So. Glendale Ave., Glendale, California).

Walker Edmiston's Morgan 3-wheeler gets the checkered flag at Sandberg Hill Climb. Road is former "Ridge Route" . . . now bypassed by a new super highway. SCCA clubhouse at rear.

SANDBERG HILL CLIMB

Cool, crisp, sunny weather made the recent Sandberg a satisfying SCCA (So. Calif. Region) event . . . . that and the air of informality which reigned thruout the day. With sports car competition growing more serious all the time and events assuming more and more big-time racing atmosphere, it is refreshing to see an event keep, year after year, its air of friendliness and amateur clubbiness.

Plenty of practice was allowed—each competing member being allowed at least three runs up the hill before the actual timing began. Sandberg Hill allows particularly good spectator viewing and spectator control (they're mostly up on the hills—out of danger)—so it may be said that "a good time was had by all."

A further advance over last year was the sound truck (courtesy Park Television) which allowed announcements of time to keep everyone fully informed.

Duane Alan's XK-120 got out of hand on his first timed run, causing him to spin and the Cannon Special got crossed up in practice.

Class "1S" (stock)

Place #1	Bill Maxey (record)	MGTD 42.93
" #2	Dr. Winters	MGTD 43.46
" #3	B. Mooney	MGTD 44.32

Class 1

Place #1	C. Lancaster	MGTD 41.80
" #2	J. Condon	MGTD 43.43
" #3	G. Young	MGTD 43.66

Class 2

Place #1	J. McAfee	MGTC(S) 37.95
" #2	L. Caton	MGTD(S) 39.88
" #3	B. Mavis	Morgan 44.91

Class 3

Place #1	C. Manning (best time of day)	Manning Spl. 35.16
" #2	T. Cannon	Cannon Spl. 36.55
" #3	D. Alan	XK-120 38.48

Women's Class

Place #1	J. Lancaster	42.46

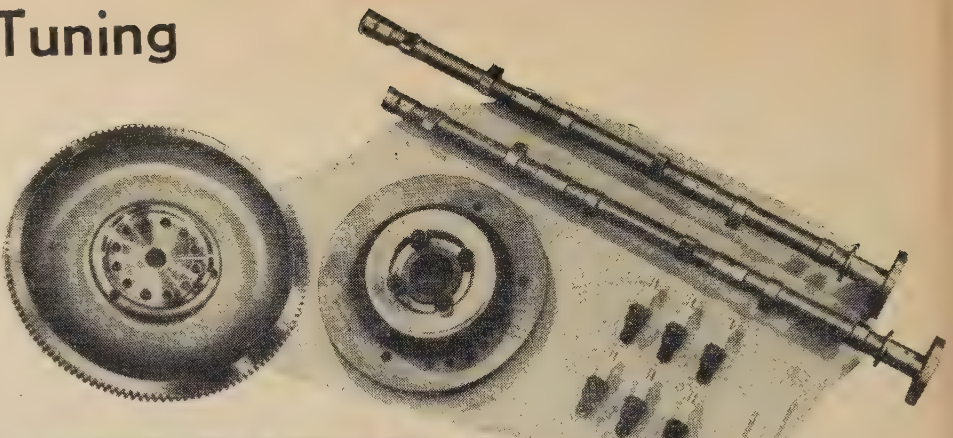
Team Winner

"Toads" B. Maxey, Kopps, Dr. Winters

Below, an MG TD comes around fast bend at Sandberg Hill Climb.

Jaguar XK-120 Tuning

The following is the recommended procedure for competition tuning of the Jaguar XK-120 sports car. While of specific interest only to Jaguar owners, it was felt that all enthusiasts would be interested in the modifications required. Illustrations are thru the courtesy of "The Autocar." Data thanx to Bill Corey.



ENGINE

7 : 1 Compression Ratio Engines

This engine is designed for use with fuel of approximately 72 octane and no improvement will be gained by increasing the compression ratio unless higher octane fuel is available. The performance can, however, be improved using 72 octane fuel in the following manner:

Parts Required

C. 5717	Inlet Cam Shaft ⅜" lift	Qty. 1
C. 5718	Exhaust Cam Shaft ⅜" lift	Qty. 1
	R. F. Carburetor Needles	Qty. 2
	Champion N.A. 8 Spark Plugs	Qty. 6
C. 5808	Lightened Flywheel	Qty. 1
C. 5809	Crankshaft Damper	Qty. 1

Remove cylinder head and valves, reduce height of valve guide at top by 1/16" by machining, but retaining chamfer at top of guide, to drawing XK.1112/3 to allow increased valve lift. Machine tappet guide inserts to give 45° chamfer 3/32" deep to Drawing XK.1111 to give clearance for high lift cam, decarbonise cylinder head, grind valves and reassemble. Supply and fit high-lift (⅜") cam shafts, Part No. C. 5717—inlet, and C. 5718—exhaust, reset valve clearance .006"—inlet, and .010"—exhaust. Reassemble engine and set valve timing, which is unchanged and is set using the valve timing gauge provided with the car and as described in Service Bulletin No. 65. The ignition timing is to be set 5° B.T.D.C. with centrifugal and vacuum advance in the static position. R.F. carburetor needles should be fitted and the carburetors reset in the normal manner. Spark plugs—Champion N.A. 8.

To obtain increased acceleration at low speed a lightened flywheel part No. C. 5808, is available which, prior to fitting, must be balanced together with the clutch unit. A special crankshaft damper, Part No. C. 5809, specially tested for operation at high rpm is also available and can be fitted in place of the existing damper.

8 : 1 Compression Ratio Engines

This compression ratio is that normally supplied for export countries where good quality fuel is available and engines have this compression ratio are identifiable by the suffix 8 which follows the engine number, as opposed to the suffix 7 for 7 : 1 compression ratio engines.

This engine is designed for use with 80 octane fuel and no improvement will be gained by raising the compression ratio when using 80 octane fuel but the performance can be improved in the same manner as described previously for the 7:1 compression ratio.

Valve timing, ignition timing and carburetor needles are as given for the 7:1 compression ratio engine but Champion N.A. 10 sparking plugs should be used for racing purposes.

The 7 : 1 compression ratio engine can be converted to 8 : 1 compression ratio by fitting the following parts:

C. 2426	Piston Grade "F"	Qty. 6
C. 2748	Distributor (Lucas No. 50199/AO DVXH, NA/GC.48)	Qty. 1

9 : 1 Compression Ratio Engines

Parts Required

C. 5724	Piston	Qty. 6
C. 2747	Distributor	Qty 1
	R. B. Carburetor Needles	Qty. 2
	N. A. 12 Champion Spark Plugs	Qty. 6

Special pistons, part No. C. 5724, are available to give a 9 : 1 compression ratio but satisfactory results will be obtained only when using fuel of 85 octane value or 80 octane fuel plus 10% benzol. To obtain the maximum performance the work already described for the 7 : 1 compression ratio engine should be carried out with the following variations.

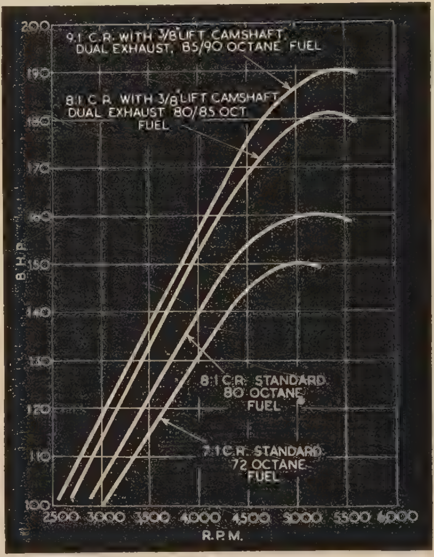
Distributor, Part No. C. 2747 (Lucas No. 40198/A - DVXH. 6A/GC.48) (standard distributor for 7:1 compression ratio engine) should be fitted, the ignition timing being set at 8° B.T.D.C. with the automatic advance in the static position. R.B. carburetor needles must be fitted and Champion N.A. 12 sparking plugs used for racing purposes.

Ignition Suction Advance

In all three cases already mentioned for racing purposes the suction automatic advance should be dispensed with, which may be carried out by either removing the pipe from the carburetor to vacuum unit and fitting a blank or by merely flattening the pipe.

Dual Exhaust

To obtain the maximum performance with either of the three compression ratios referred to, a special dual exhaust system, Assembly No. C. 5700, should be fitted. This should be installed as shown on Drawing No. C. 5700 which can be provided. Note, however, that when fitted this exhaust system reduces the ground clearance by approximately 2".



General

It should be noted that with the modifications mentioned maximum engine power is developed at higher rpm than previously and that the maximum rpm of the engine will be 5600 rpm as opposed to 5400 rpm before modification.

In all cases where cars are used for competition work the main water thermostat should be removed, the by-pass pipe from the thermostat housing blanked off and a manually operated switch wired up to the self-start carburetor to allow the self-start carburetor to be cut out once the engine has been started from cold.

CLUTCH

In all three cases referred to, to allow for the increased power output, a special clutch assembly, Part No. C. 5722, is available and should be fitted. This assembly is specially tested at high rpm with a special solid centre plate having linings rivetted and cemented to the plate, to give maximum friction on first engagement for racing starts and a special release bearing to stand up to the increased power.

SUSPENSION

Parts Required

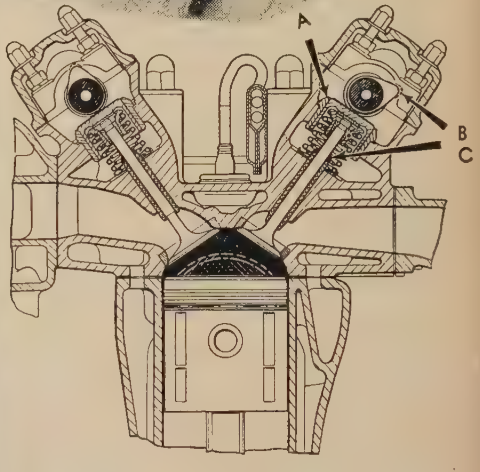
C. 5719	Torsion Bar R.H.	Qty. 1
C. 5720	Torsion Bar L.H.	Qty. 1
C. 5721	Rear Road Spring	Qty 2

Both front and rear suspension can be stiffened up and it should be noted that it is advisable to stiffen both front and rear and not front only or rear only. To stiffen the front suspension fit Part No. C. 5719 (R.H.) torsion bar and Part No. C. 5720 (L.H.) torsion bar in accordance with instructions laid down in Service Bulletin No. 55. Replace the rear springs with stiffer rear springs, Part No. C. 5721.

BRAKES

The best results will be obtained using the standard brake drums and standard brake shoes fitted with Mintex M.14 linings (standard fitment from chassis No. 660551 (R.H. drive cars) and 671097 (L.H. drive cars).

For long races, brake shoes fitted with ¼" linings in place of the standard 3/16" thickness are available and when these brake shoes are used special micro adjusters should be fitted to the front brakes and special pull off springs should be fitted to all four brakes. Part No. C. 5725, covers one complete set of brake shoes with Mintex M.14 ¼" linings, four micro adjusters to replace existing front brake micro adjusters and one set of special pull off springs.



Arrows show (A) 3/32" x 45° chamfer on top of valve guide inserts; (B) high lift camshafts; (C) valve guide height reduced 1/16".

For racing purposes it is advantageous to provide ventilation for the rear brakes to which air scoops can be fitted to the front end of the back plates and ventilation holes cut in the back plates to the rear of the hub. No special parts are available for this work. For all races cars should be run with the rear wheel spats and wheel nave plates removed.

REAR AXLE RATIOS

The following ratios are those which will prove most suitable for competition work and will provide the following maximum speeds using 6.00 x 16 road racing tires.

3.27 : 1 Suitable only for very fast circuits having straights approximately three miles in length. Top gear 145 mph at 5800 rpm; third speed 106 mph at 5800 rpm; second gear 74 mph at 5800 rpm.

3.64 : 1 (standard ratio). Top gear 139 mph at 5800 rpm; third speed 96 mph at 5800 rpm; second speed 66 mph at 5800 rpm.

3.92 : 1 Top gear 121 mph at 5800 rpm; third speed 89 mph at 5800 rpm.

4.3 : 1 Top gear 112 mph at 5800 rpm; third speed 81 mph at 5800 rpm.

It will be understood that it is not possible to give definite advice on which ratio should be used for a particular circuit since this will depend upon the length of the straight, the speed at which the car enters the straight and the speed at which it is possible to take the corner at the end of the straight and any gradients which exist.

BODY

Weight can be saved and a more firm seating position provided for the driver by the use of bucket seats upholstered in Bedford cord which can be supplies, Part No. BD.5893 being the part number concerned.

Racing windscreens and cowlings which can be fitted when the normal screen is removed are available, the part number being BD.4470 for L.H. drive cars and BD.4471 for R.H. drive cars.

In all cases when competing in races as much weight as possible should be saved by removing the hood, spare wheel, tools, etc., unless it is necessary for them to be carried.

Autobooks for Winter Reading & Study

FORTHCOMING BOOKS

Orders may be placed for these books without deposit. Prices & delivery dates are approximate but notice of arrival will be sent as soon as we receive the books from the publisher.

"THE MOTOR" YEAR BOOK 1952...............$3.50
This overwhelmingly popular yearly review of British motoring, world car statistics, road test summaries, and overall racing picture is rapidly becoming a must for all enthusiasts. Supplies will be limited & orders will be filled in the rotation they are received. Spring '52. (We are out of the 1951 edition but have 1950's left at $3.00.)

THE SPORTS CAR by Thornley...............$3.00
A book on the Preparation & Improvement of the Sports Car by the author of MAINTAINING THE BREED. This book has been beset with difficulties & will be published in 1952 in a limited quantity. Get your orders in now!

M.G. INSTRUCTION MANUAL...............$3.00
This may not be the final title of the book but it is to contain the Instruction Manuals for every type of M.G. ever made to & including the TD Mark 2 as well as the out of print TUNING MANUAL. Authorized by Nuffield.

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Strictly a designer's book written as a text for the study of the fundamentals & technique involved in the design of an automobile. The running gear (except engine) is covered thoroly & expertly. Being revised & reprinted. (Mid. 1952.)

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AUTOSPORT, wkly, (competition only) (sample copy 50c)	$12.50 yr.
AUTOMOBILE ENGINEER, mo., smpl. $1.25	$8.00 yr.
LIGHT CAR, mo., sample copy 35c	$2.50 yr.
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IOTA, mo., 500 magazine (sample 40c)	$3.50 yr.
BUGANTICS, mo. Bugatti Owners Club magazine (sample copy 50c)	$4.00 yr.

ITALIAN

INTER AUTO, mo., (gen'l), sample $1.25	$10.00 yr.
MOTOR ITALIA, quarterly, (general) (Sample copy $3.75)	$11.00 yr.
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BRITISH NEWS

by "Pukka"

In this island the fogs and inclement winter weather have shifted the enthusiast's field of activity from the race track to the bar—instead of (alas!) to the garage . . . where his mount lies forlorn, unstripped, still bearing the dust of the last race of the season . . . the cracks in frame and block still undetected. Talk, over pints of beer, is mainly on three subjects: indignation at having one's Monte Carlo Rally application turned down; the ideal car for the 1954 Formula*; and, of course, the BRM.

This controversial car seems to have been made to go fast at last . . . *in a straight line* at Monza. But if you think this raises your columnist's hopes, you are wrong. If it takes *four* years for the BRM's builders to realize that it is beneficial to flat-out-test the car on the Autodrome,** then why must we expect that some time in the next *ten* years the car will be able to compete with the new Formula I, two-and-a-half litre unblown vehicles? (Remembering that the BRM engine will have to be suitably bisected—and won't *that* be easy!)

No one seems to have noticed the Mexican Road Race—and that's a pity. This race is more important and undeniably more remunerative than the Mille Miglia . . . . both immediately and from the long term point of view . . . . because it attracts the attention of more of the car-buying public and more of the readily purchasable competing cars. Ferrari's victory came as a pleasant surprise. Everyone in Europe thought surely the big bore Americans would have it over the 2600 cc Italians on the straight (tho it was expected that the Ferrari would win in the mountain).

And what is all this about a 150 mph Chrysler? Really, this LeSabre-like tendency of the U. S. auto industry is highly amusing (tho it may be of some practical value). I am inclined to skepticism when I hear the claims of 310 bhp. This implies an increase of 10 bhp per litre over the XK-120 Jaguar . . . . and this, with an engine which admittedly has a larger, more elaborate mass of reciprocating valve gear, and therefore (one would assume), less efficient aspiration at the same rpm. However, there is no denying the efficiency of the Chrysler power unit which propelled the Cunningham with such celerity around U. S. road circuits. But to one taught to balance piston area, frontal area, laden weight and common sense, the performance of these cars at Watkins Glen's narrow (and very genuine) road course is incomprehensible—unless the hidden factor is the skill of the drivers. Consequently, we are all eager for the return of this equipe to Europe.

In the face of these gathering threats, the long awaited announcement of the Jaguar XK-150 next year will not come any too soon.*** Details are scarce, but I can guarantee twin ohc, 6 cylinders, 4500 cc, disc brakes . . . . your guess is as good as mine about the chassis, but I imagine there will be the new Heynes rear-axle arrangement.

English disappointment in the Austin 7 seems general, however well it will be received in other parts of the world. What the Britisher had in mind was something tough, Spartan, economical and cheap (by our standards); a slightly more attractive, more gutful, 2 cv Citroen, for example—*not* a scaled down A-40 with such unnecessary luxuries as a light on the dash to indicate whether the lucky owner had his high beams on or not. It is rumored that Sir John Black (Standard Triumph) is going to have a shot at filling this demand shortly. (*This is an illustration the difference of viewpoint between the Englishman and the American . . . . personally, I think the new Austin is a little honey—I would like to have one.*—ED.)

Little club activity to report at this time of the year . . . . except Trials. And they are so awful, so cataclysmically boring to your correspondent that he hesitates mentioning them. What happens is this: a group of, say 150, enthusiasts drive totally unpracticable little cars (with weight distributions 15% front/85% rear) from one mud pit to another, where every weekend they slither about in a competitive frame of mind. Presumably this activity amuses the competitors. It does not amuse your columnist, who is not clearly informed on the American state of mind. You must let me know if this type of entertainment is required by *Road and Track's* readers****.

Probably the hottest news which can be sent your way is the well-confirmed rumor regarding the MG "TE". Barring cataclysmic upsets, the car will be announced soon and produced . . . . ? In looks it will be (with minor modifications) the same car which ran last year at Le Mans (*Road and Track*, August, 1951).

Le Mans flash-back . . . . a driver who was circulating clumsily, to say the least, complained that his headlights were not giving adequate illumination. An anonymous voice from the next pit suggested that he would soon be able to drive solely by the beautiful incandescent glow from his near-molten brake-drums. . . .

---

*1954 Formula 1: 750 cc blown, 2500 cc unblown.—Ed.

**Monza—Ed.

***Steel and other shortages in England make an up to two year gap necessary between such announcements and deliveries. Readers are advised to buy their MGs, Morgans now, and not to wait for new cars mentioned by Pukka. Example: Jowett Jupiter, announced over two years ago, only recently available in small quantities.

****It is.—Ed.

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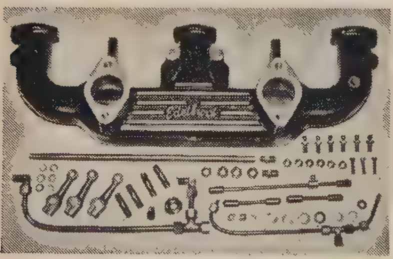

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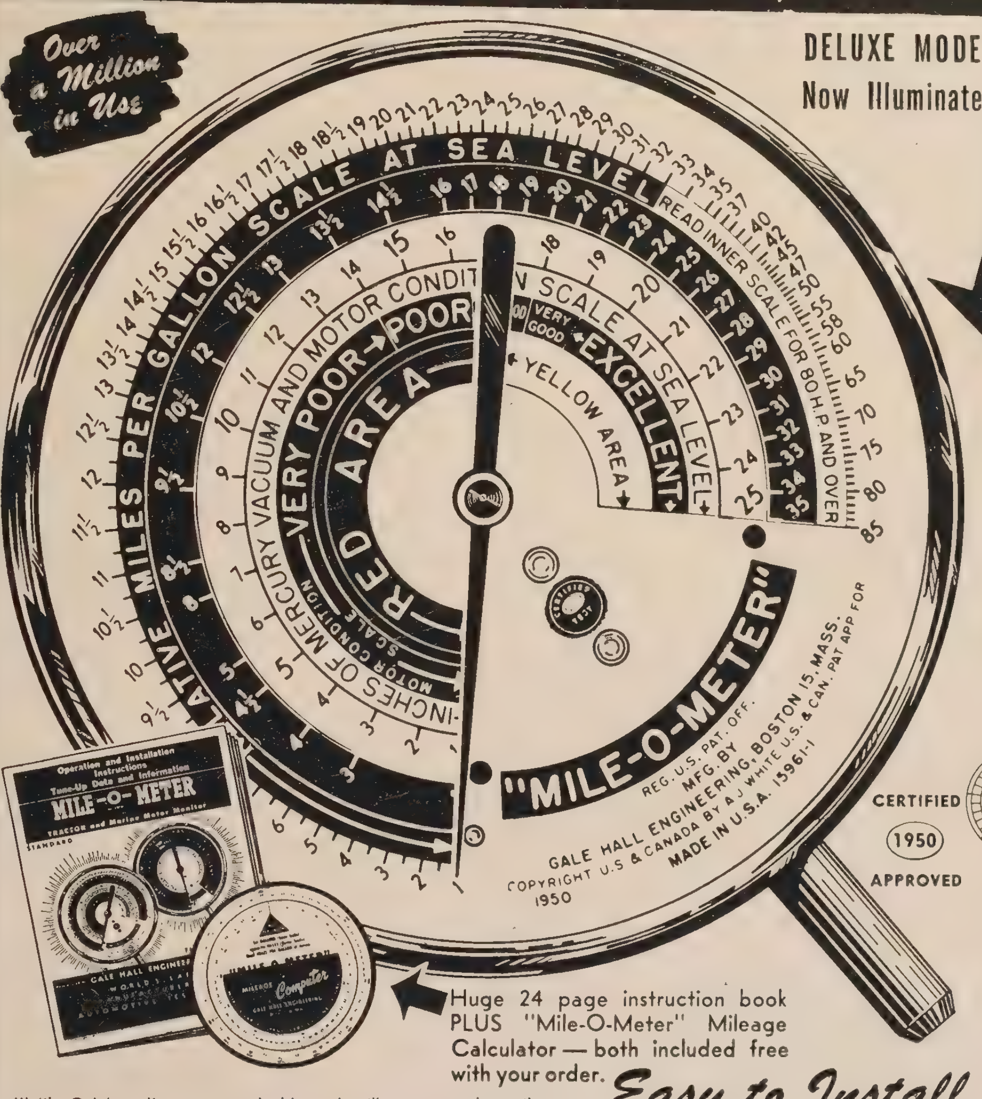

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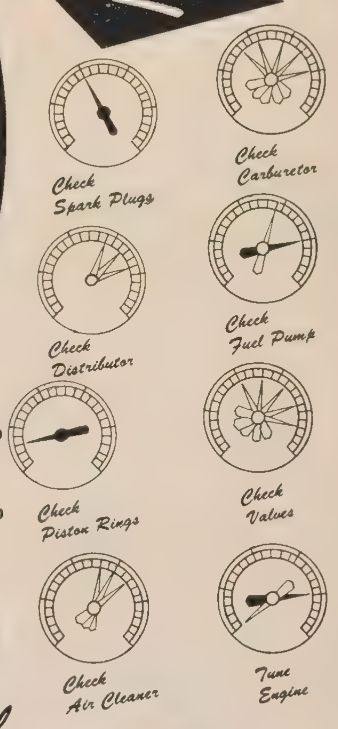

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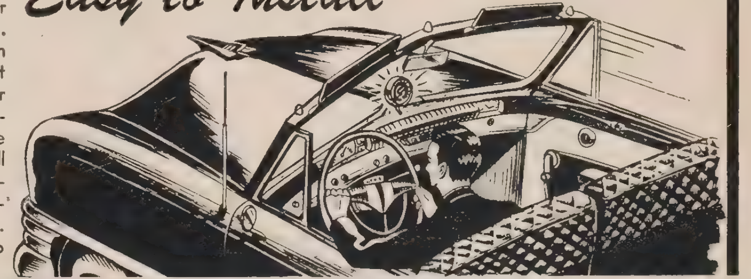

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Three Interesting Sixes...

by John R. Bond

Three excellent and interesting new cars have recently been road tested abroad—interesting because the 2 to 2½ litre engine size represents a very competitive field in Europe. The three cars are the new British Ford Zephyr, British GM's Vauxhall Velox, and the Australian General Motors car, the Holden. No effort is likely to be made to sell any of these cars in this country, but interest rises when it is realized the Zephyr is similar to the light Ford 6 that was announced late in 1945, and the Holden is almost a scaled down Chevrolet, somewhat similar to the light Chevrolet 6 also announced late in 1945. We're still waiting.

Anyway, look at the amazing similarity of specifications on these three cars, and also note the tremendous influence of American design on both the styling and mechanical features. The 1951 Chevrolet with manual transmission is thrown in for comparison purposes.

	Ford Zephyr	GM Vauxhall	GM Holden	Chevrolet
Curb weight	2548	2464	2247	3250
Wheelbase	104	103	103	115
Tread—rear	49	54.5	54	58.7
Tire size	6.40—13	5.90—15	5.50—15	6.70—15
No. of Cyls & type	6 ohv	6 ohv	6 ohv	6 ohv
Displ. cc & cu in.	2262 - 138	2275 - 139	2171 - 131	- 216.5
bhp & rpm	68 at 4000	58 at 3500	60 at 3800	92 at 3400
axle ratio	4.375	4.125	3.89	4.11
Timed top speed	81	77.4	80.0	82
Zero to 60 time	21.1	23.7	20.7	20.2
Miles per U.S. gal. at 50 mph	19.6	22.5	24.5	17.0

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BOOK REVIEWS

TOM McCAHILL ON SPORTS CARS

by Tom McCahill Fawcett Publications, 75c

Mechanics Illustrated magazine's "Pot-O-Gold" McCahill has the largest following, and is the most read writer (on cars) in the world today—and as far as sports car owners and foreign car lovers are concerned, the most criticized.

Say what you will about some of his headlong statements, Uncle Tom knows what the public wants and he gives—albeit with a curve-ball now and then. He knows that the important thing is to throw a flat-footed opinion to the mob to set them wrangling. In the process, Tom gets better known and, it is hoped, better paid.

Authorities and connoisseurs will be pleased to know that: "Lea-Francis is not the name of the check girl at the Stork Club"; the Muntz Jet "can rocket to a top speed of 125 mph"; "The Crosley Super Sports is a great sports car in any league and damn near upset the automobile world at Le Mans"; it "holds the road like glue and corners actually like a baby Ferrari," and at the same time may "flip you into the front row of the grandstand"; the MG TC gear box is identical with the TD, and so on.

Whoever can read between Tom McCahill's lines will come up with some good information. If new car owners follow the advice on breaking-in procedures, he will get many more serviceable miles out of his car than otherwise, and McCahill gives out with some good tips on spark plugs and distributors in the passages dedicated to tuning a sports car.

This review cannot—in all fairness—objectively criticize the photography in McCahill's latest tome, inasmuch as some of the shots were lifted from **Road and Track's pages.** (Aw, shucks Tom . . . we don't really care.) But it should be stated that the charts on speed calculation in the back of the book are in themselves worth the price of the book.

THE FIRST HUNDRED ROAD MOTORS

R. W. Kidner The Dakwood Press

A fascinating history of early self-propelled vehicles has been compiled by Mr. Kidner. Covering the period from 1769 to 1871, this book lists and pictures an astounding array of steam "cars" which paved the way for the modern automobile.

With enough "particulars" to suit the most ardent enthusiast, and written in a style which would generate interest in the most sluggard schoolboy, a wealth of hitherto unpublicized fact is available in this volume; from the familiar Cugnot steam wagon to Thompson's road steamers, including 98 other hopeful attempts, many of which were surprisingly successful. Many of the illustrations furnished by Mr. Kidner are actual photographs of these machines.

Passengers in early steamers were wary of riding close to the boilers, hence many "drags" were built (similar to the modern tractor-trailer). Enormous and bizarre these drags were, the Greyhounds of their day. Much interesting data on their construction and operation comes to light in "The First Hundred Road Motors."

Of further interest is an accurately compiled appendix which lists all the steamers in order of their building, type, construction date, and place of origin. For pleasure or research, this book should be a welcome addition to any shelf.—S.W.

DESIGN YOUR OWN LIGHT CAR

by Walter H. Korff Autobooks, $2.00

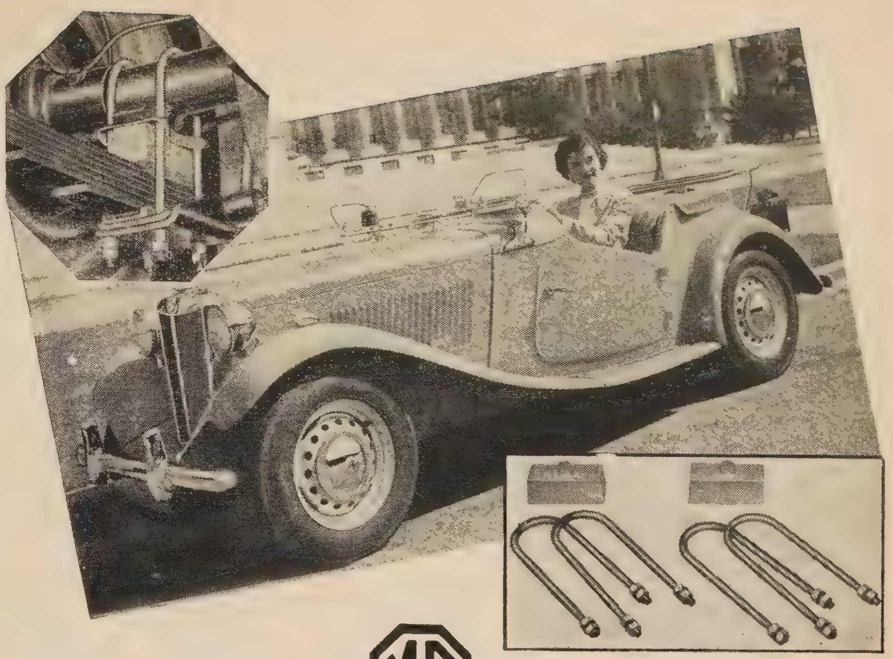
Two years ago Walter Korff, design engineer for Lockheed Aircraft, built himself a three-wheeled (one front, two rear), Briggs and Stratton powered, wood and metal car, which will "seat two people and packages." His 60-page paper-back pamphlet (printed in offset) tells of the pitfalls and mistakes one faces in attempting to duplicate his feat.

Proof of his know-how is best exemplified by the fact that Korff has used his little car for to-and-from-work transportation for a two-year period and the result has been good.

Korff tells his story and gives all specifications in a chatty, over-the-back-fence, easily read style, yet the specifications and figures are conclusive enough to help the amateur builder along his way.

In a booklet of this size, one couldn't very well expect to have the entire field of chassis, engine and body construction covered. So it is amazing how much Korff has been able to cram into the space.

Looks like a good buy—if you want to build your own light car.—R.D.



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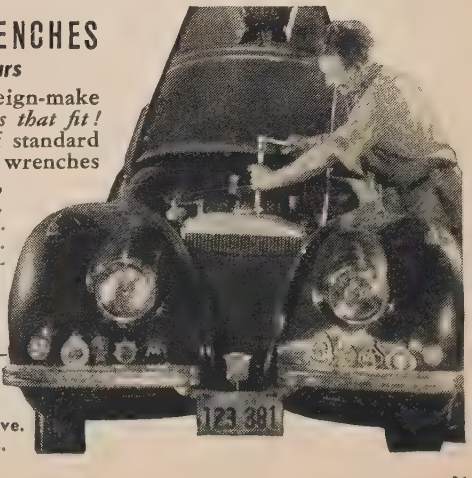

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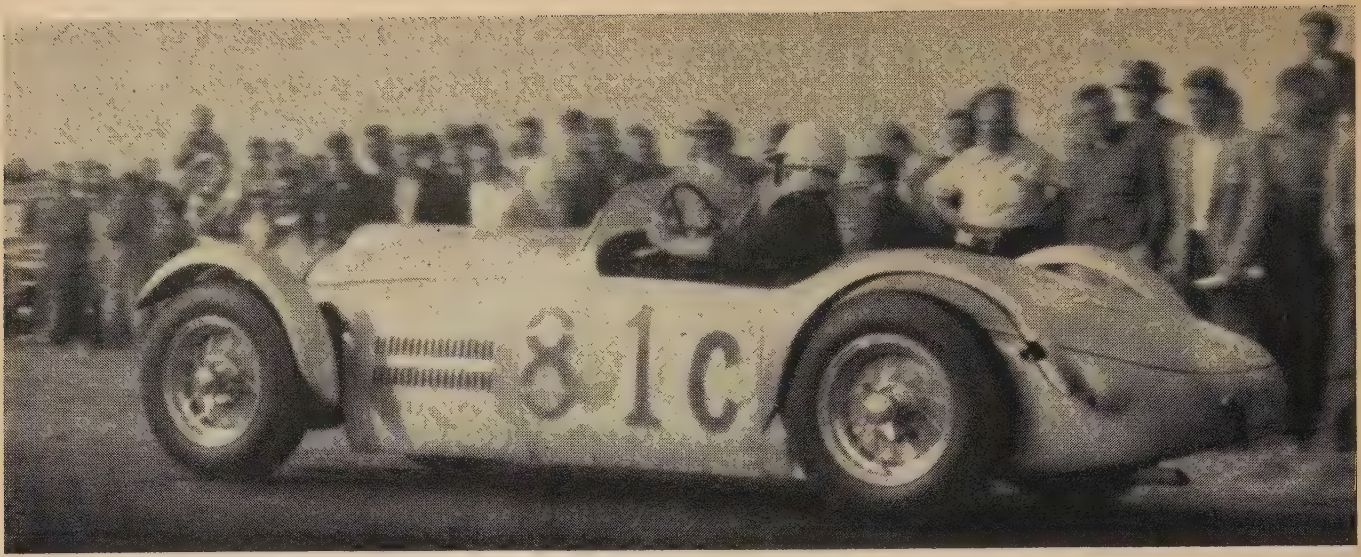


Jaguar XK-120 Special --

Article and photos by R. J. Witt

One of the most fascinating sport car entries of this or any other season made its debut at the Bridgehampton Road Race last June, winning its class easily over a swarm of XK's and a Ford-Allard.

Credit for its design and construction goes to lanky, unassuming John Fitch, who has driven in the most of the important races in and out of this country. It is not surprising that Fitch, who is head of the large and thriving Sports and Utilities Motors (White Plains, New York), and has an intimate knowledge of sports cars and competition driving should have been the one to design such a striking and functional machine.

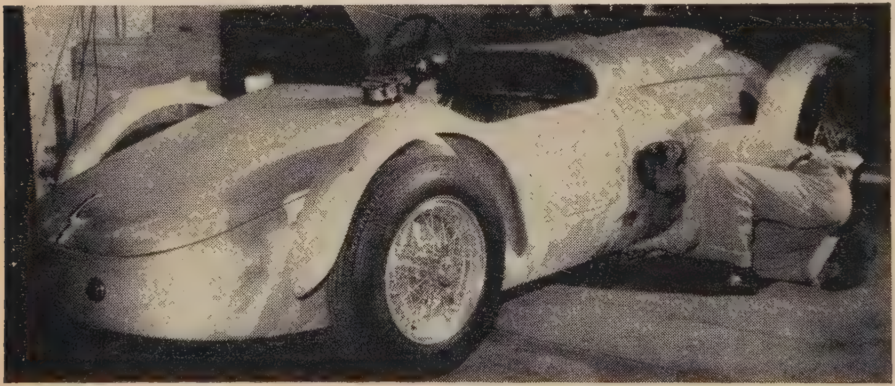
The car was built for the well-known illustrator, Coby Whitmore, whom you'll find more often in Fitch's shop than in his own studio.

Interest was first aroused in Fitch's latest achievement when fans learned before the race (Bridgehampton) that the extremely light and well streamlined aluminum body was hiding a virtually stock XK-120 chassis. Save for reground camshafts the engine is unmodified. Larger and more efficient Alfin Drums were fitted—proving extremely efficient, especially when aided by exposed wheels. (A distinct advantage when surprising a 90° corner at high speed). Wheels are Borrani—distributed by A. E. Ulmann. Gas capacity is 20 gallons and is handled thru a huge filler reminiscent of the best Grand Prix style.

John Fitch's scrupulous devotion to detail is well illustrated by the fact that the car was barely completed in time for the Bridgehampton race. This permitted but a minimum break-in period (an extremely vital part of any pre-race preparation), yet the car ran faultlessly, winning its class, hands down.

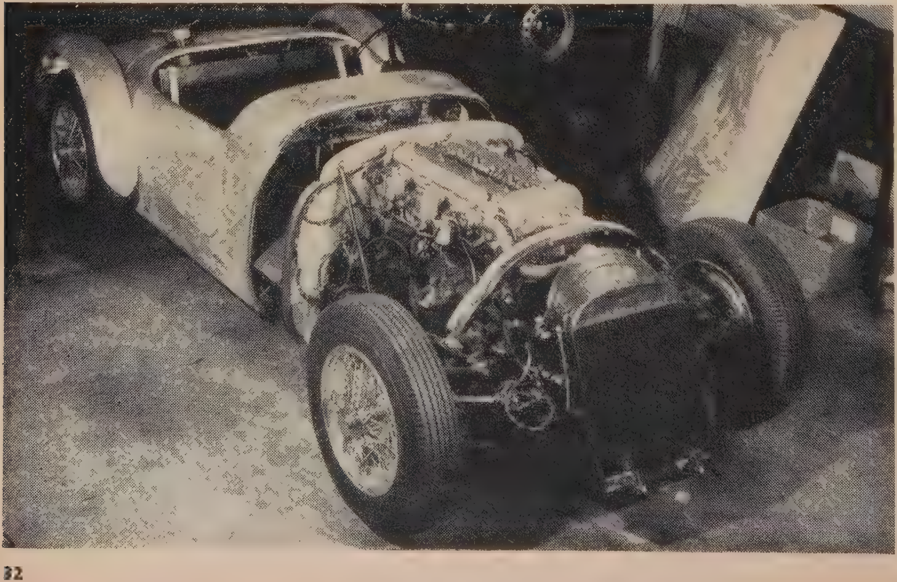
As might be expected, handling characteristics are magnificent—shorn of unneeded frontal weight, the aluminum body fits the chassis like a silk glove, cutting the total weight to a mere 2150 pounds, nearly 800 pounds lighter than the stock Jaguar. The emergence of the Fitch "Le Mans Special" was indeed a refreshing sight and serves to illustrate the individuality burning bright within each one of us.

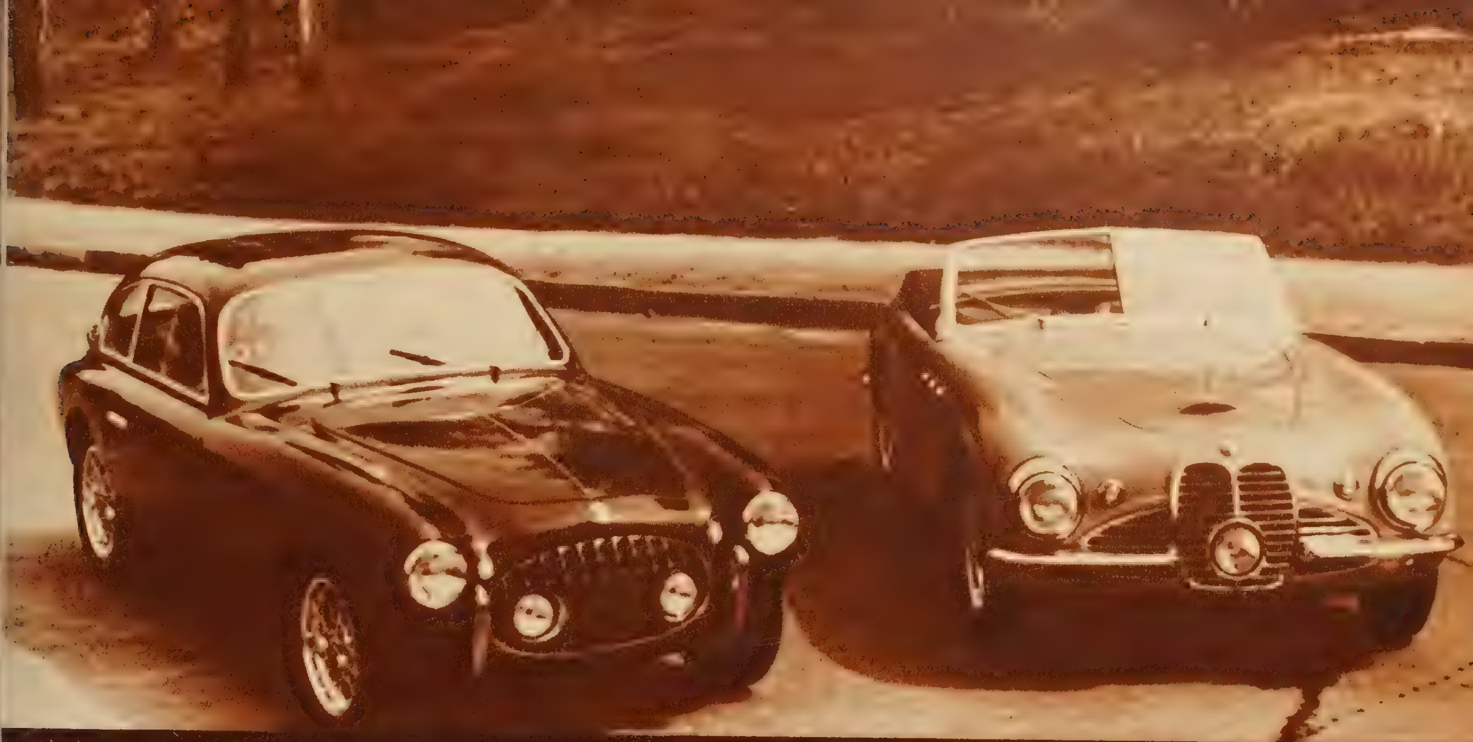
Let's hope that an ever increasing number of "specials" will be seen in future events.



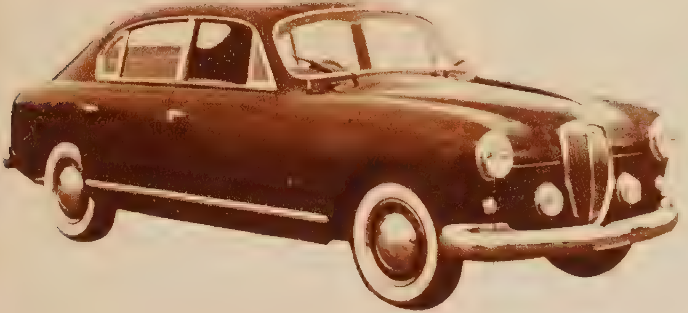
Final adjustments to light body are made prior to 1st running at Bridgehampton road race.

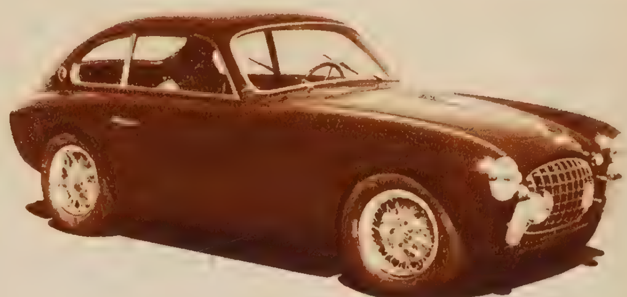
Light construction is clearly evident. Note large, quick operating fuel filler below and right.



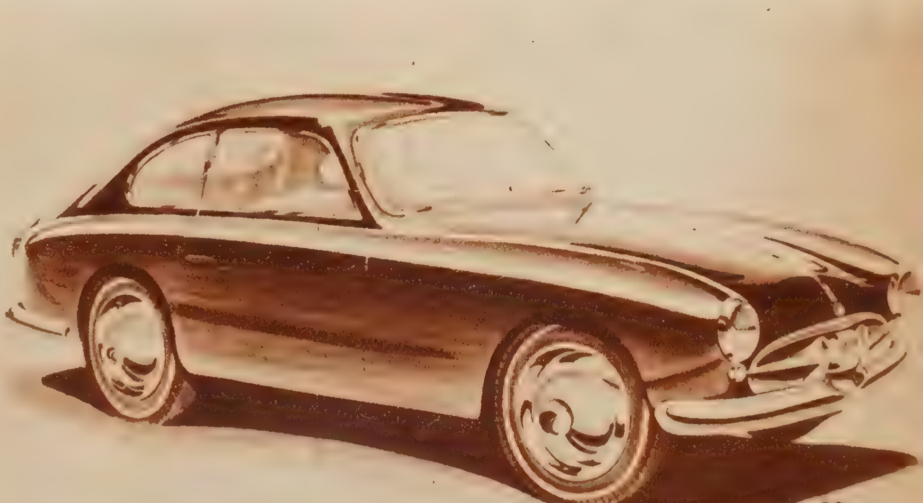


Frua





Among the little publicized, but widely respected small coachbuilders in Italy, Frua stands out as one of the best. Of their recent work, the 2-litre Maserati has already been shown in *Road and Track* (Jan. '52). The photo at top of page shows this car alongside the new O.S.C.A. coupe—the first coupe, incidentally, ever built on the 1100 cc O.S.C.A. chassis. Note the compactness of this design, which eliminates all unnecessary overhang at the front and rear. Also illustrated are Frua's Lancia Aurelia 4-door, above, right, and the preliminary sketch, at right, of their newest creation, a coupe on the D.B. Panhard chassis. The 2-cylinder Panhard engine of the Deutch and Bonnet designed chassis is one of the most interest-engines in use, having torsion bar valve springs and special patent roller bearings, in addition to the unusual air cooled horizontal opposed cylinder arrangement. Frua's body on this outstanding chassis should make a truly attractive car.



Ascari avoids oil slick . . . Gonzalez plunges thru . . .

Modena start. Simcas lead, followed by Ferrari 4s.

Lampredi confirmed.

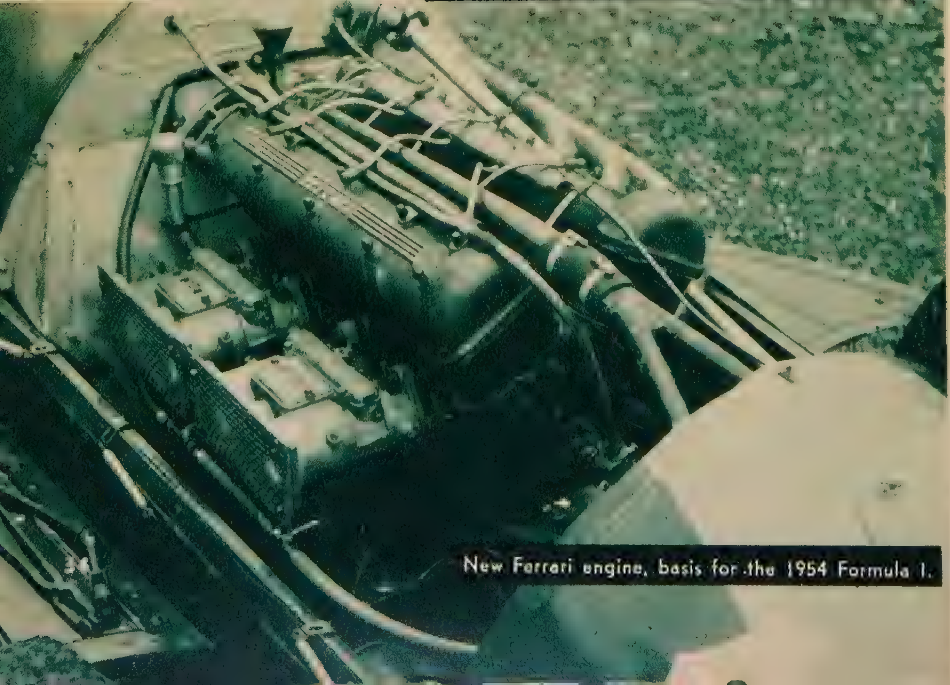
Fabulous Ferrari 4

Story and photographs by Corrado Millanta

By winning Formula II at Modena (*Road and Track*, August, 1951), the 4 cylinder, 2 litre DeDion-suspended Ferrari clearly established supremacy over the 12 cylinder Formula II (Ferrari). Gonzalez, driving the 12 cylinder, actually finished one lap behind Ascari's 4. The car finished third at Bari G. P. Aurelio Lampredi, Ferrari's head engineer, increased the capacity to 2500 cc and put the car thru intensive practice at Modena (Northern Italian airport race circuit, where Ferrari tests all its cars).

Mr. Lampredi explained to me how he came to invade the Ferrari 12 cylinder fortress with a 2 litre 4. He says the 12 cylinder engine is much more complicated, heavier, and generally develops less horsepower in the low/medium ranges. In fact, the 4 cylinder develops more horsepower between 2000 and 5000 rpm and being built with sane and modern conception, disposes of higher power even at maximum rpm (7000). Results at Modena—where the 4 and the 12 met—show that what Lampredi told me has been confirmed.

For the 1954-1957 Formula (2500 cc unblown, 750 cc blown) Ferrari now has two models: the 12 cylinder, 2500 cc driven with great success by Fischer at Nurburgring; and the new 2500 cc 4: developed especially for this new class. For a long time Ferrari has believed that a 2500 cc, 230/250 hp car, weighing 1222 lbs could beat all 4500 cc unblown (and 1500 cc blown) records—because of superior handling and possibility of using all effective power on a winding course. If we remember that the present 4500 cc unblown has beaten the records of the 5000 cc blown of 1937, we must say that Ferrari's opinion isn't risked at all—particularly since the 1937 car weighed the same as today's 4500 cc car, yet developed 150/200 hp more.


New Ferrari engine, basis for the 1954 Formula 1.

Flag technique.

The new Ferrari 4 is a "Superquadro" (oversquare) in that it has 90 mm bore with only 78 mm stroke—quite short for a 500 cc cylinder. Very large valves (two per cylinder) are recalled by four springs each—two cylindrical and two pin type. The piston speed is 3543 ft. per second—well within safety limits despite the high rpm of 7000, at which speed the engine now develops 170 hp. The block and head are integral and the gearbox is located close to the differential.

Without a doubt, Mr. Ferrari will participate with this car in the 1952 races—not only in Formula II (2 litres) but in Formula I with the engine enlarged to 2500 cc.

THE MODENA RACE

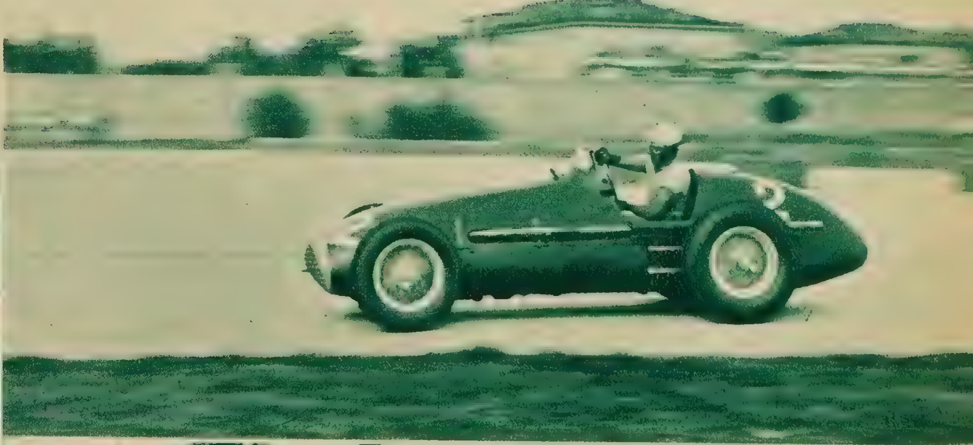
Ascari's victory was clear and indisputable—even if at the start there was a surprise offered by the two Simcas (driven by Simon and Manzon). The Frenchmen gained a very high advantage by starting sensationally fast. Unfortunately they stopped at the pit after the first lap, so Ascari and Villoresi moved into 1st/2nd, the former holding his position to the end and Villoresi was 2nd until his retirement because of valve trouble.

Interesting has been the battle between Moss' HWM and the Ferrari 12 cylinder of Gonzalez and young Marimon. During that battle Marimon excellently kept his place on Gonzalez' tail, but the pair could not pass Moss. This fact should show that the HWM are characteristically equal to the 12 cylinder Ferrari used at the beginning of the '51 season. Thus a great honor is due the small British sports organization.

Alas! Moss abondoned his 3rd place to Gonzalez who soon moved into 2nd as Villoresi went out, while Macklin (HWM) passed Marimon's Ferrari when it came into the pits for wheel trouble.

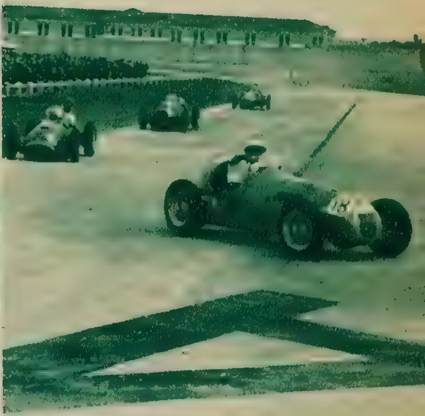
The short thunder-like Simcas were interesting, but despite their lightness, their engines are stretched too much.

Ascari winner.

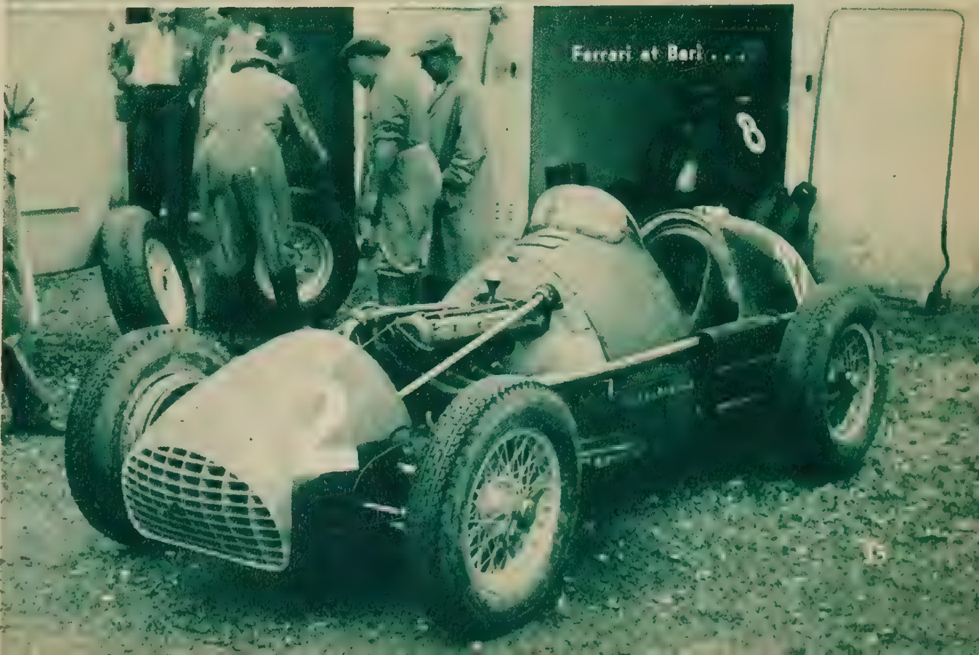


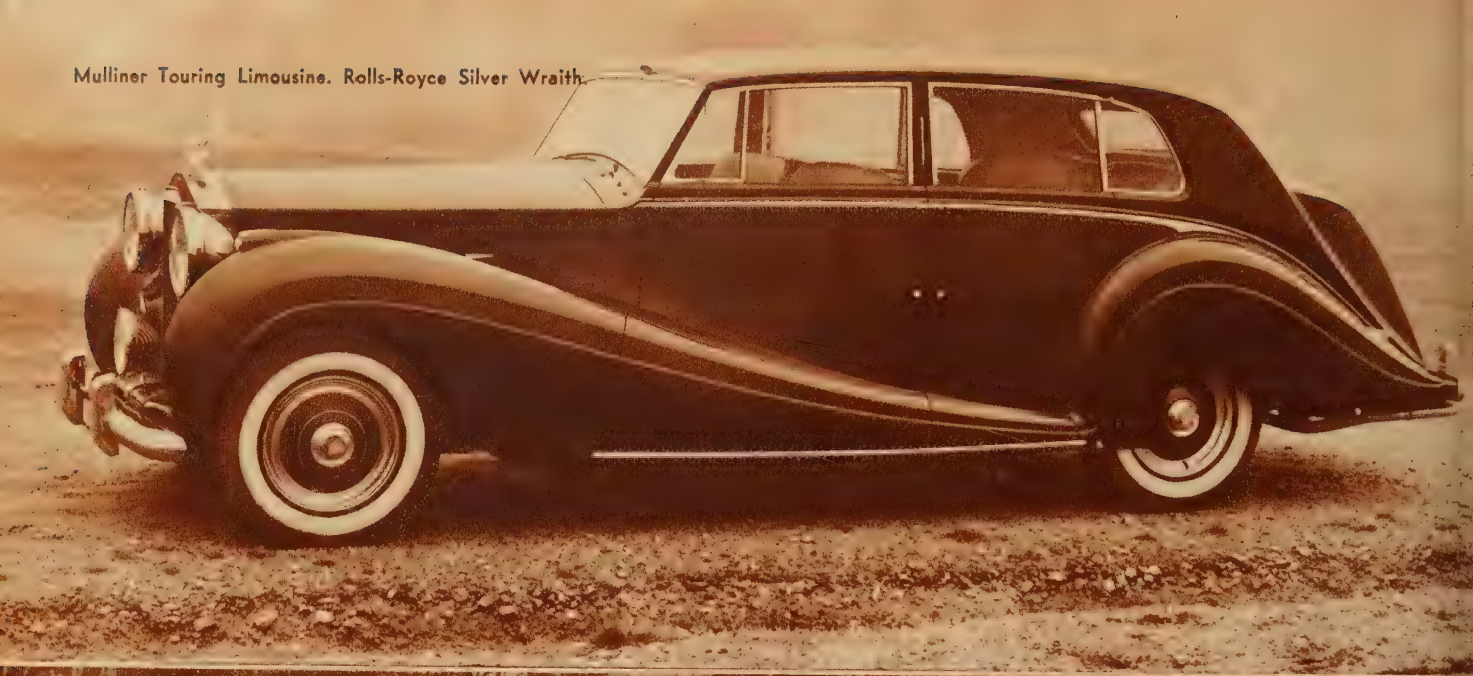
Clearly established.

Moss abandoned his.

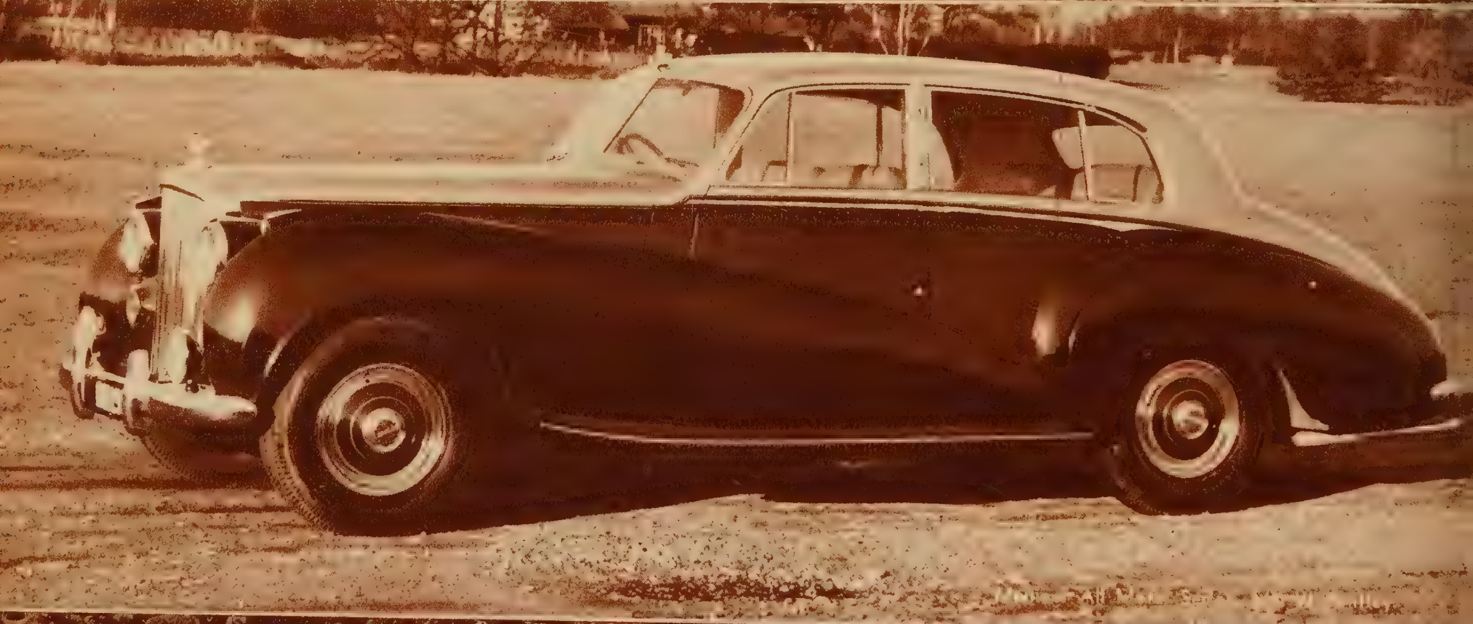


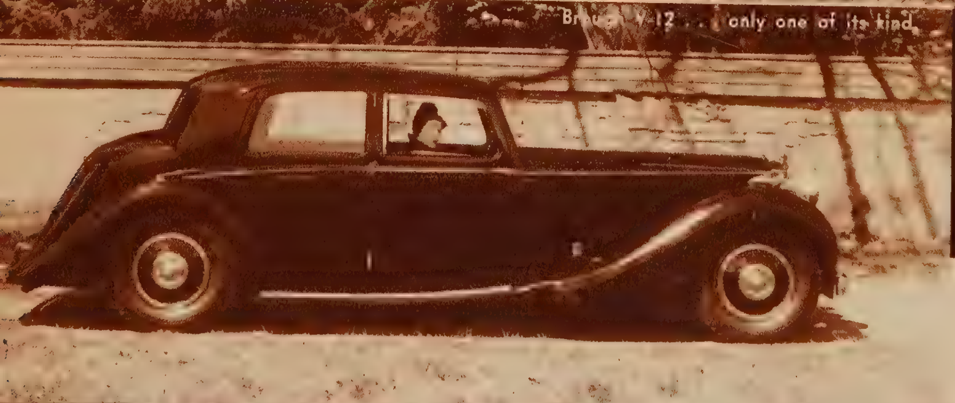
Ferrari at Bari . . .



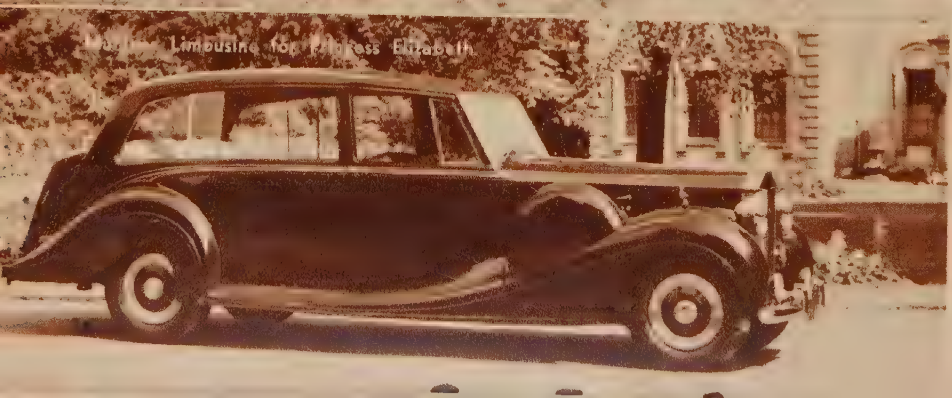


Mulliner Touring Limousine. Rolls-Royce Silver Wraith.





[illegible] V-12 . . . only one of its kind.



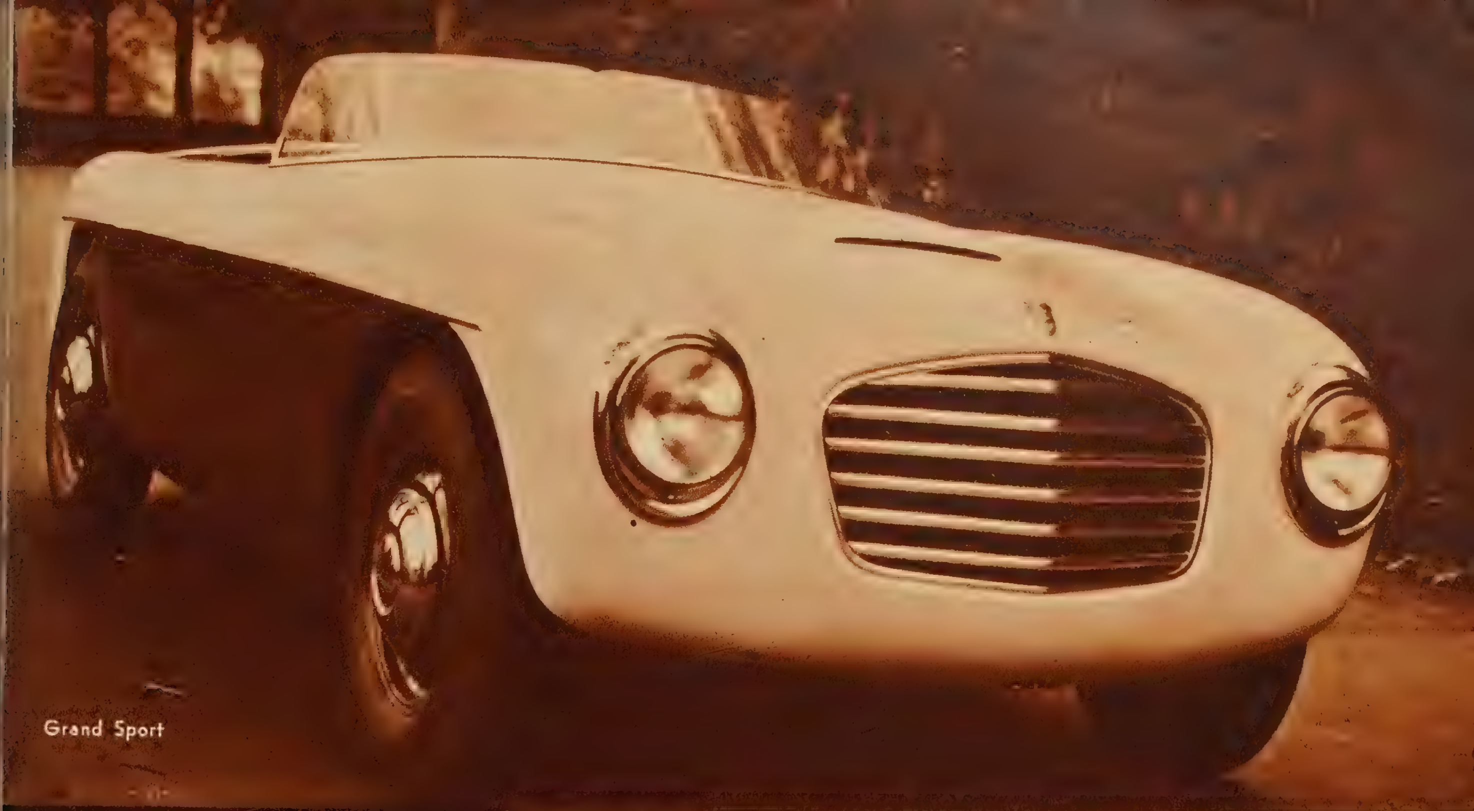
Mulliner Limousine for Princess Elizabeth.

British Styling

Tho the British, down thru the years of motoring history, may have taken a back seat in Grand Prix competition, no people in the world to-day may claim as much in the fine art of coachwork.

Craftsmanship of the highest order has been handed down from father to son, thru many generations . . . along with taste: which means quiet elegance. Clinging to such traditions as fine wood, beautifully-worked leather and classic lines, the British are able to satisfy a world-wide demand for quality workmanship . . . the type of hand-built quality which is nearly impossible to fabricate in a mass production age.

These are a few of the finest examples of Anglo styling—based on the rarest and the finest chassis.

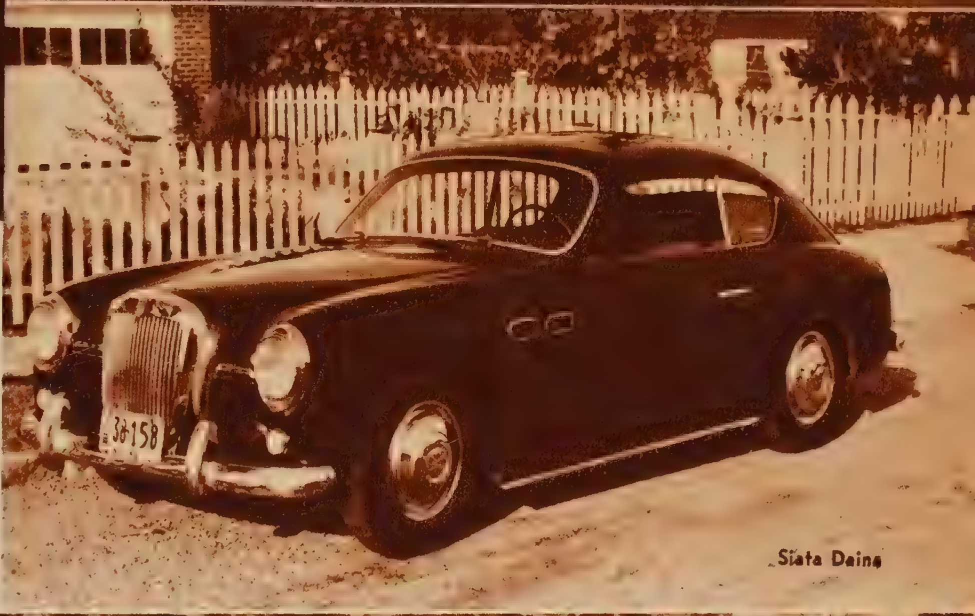


Grand Sport

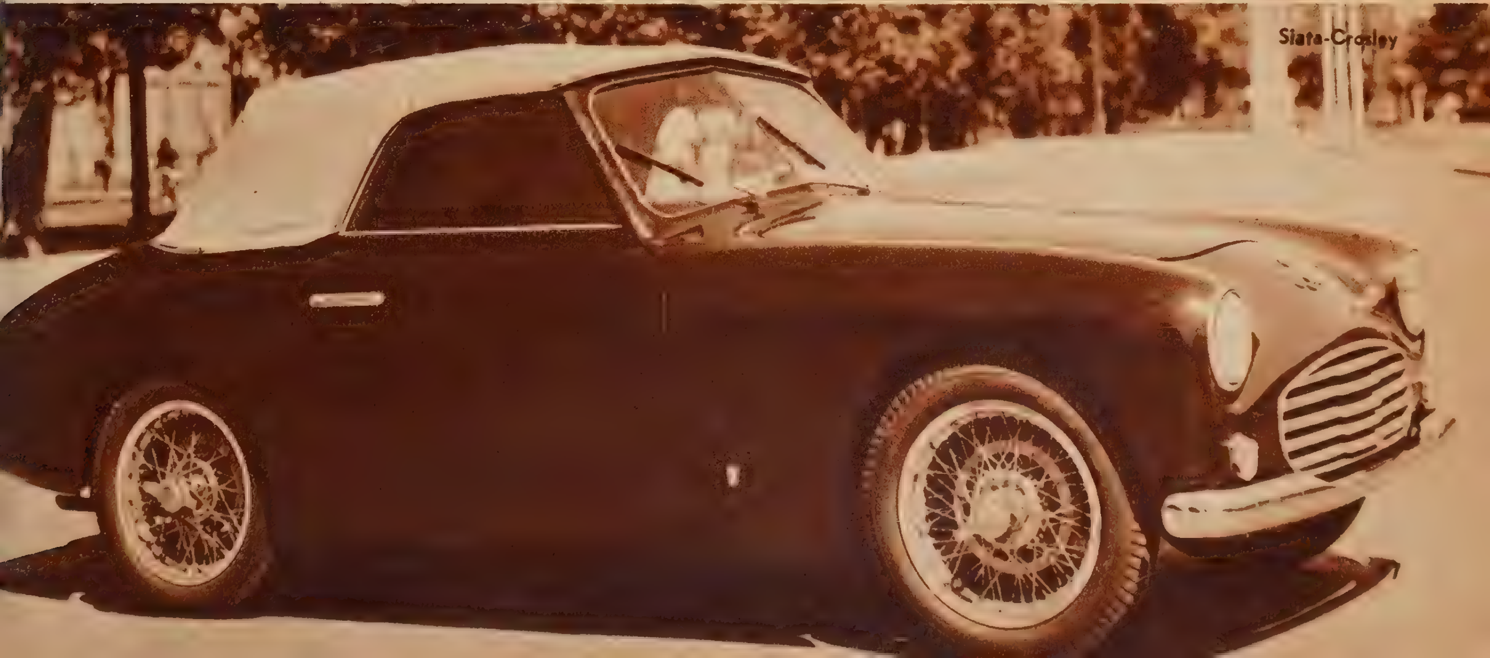
Siata

Rapidly becoming popular among American enthusiasts is the name Siata . . . of Turin. The Grand Sport is a true sports car, i.e. competition/transportation: 96 inch wheelbase, Farina body, 1390 cc Siata-Fiat engine. Or you may feast your eyes on the Siata "Diana" Sport Coupe—a 94.5 inch wheelbase car based on the Fiat 1400: an engine for which there is an ample supply of speed equipment available on the Continent.

Last but not least—the Siata-Crosley: An 80 inch wheelbase car which should appeal to the American small-car enthusiast—not only for its good handling qualities, but for the accessability of engine components . . . An excellent Italo-American combination.



Siata Daina



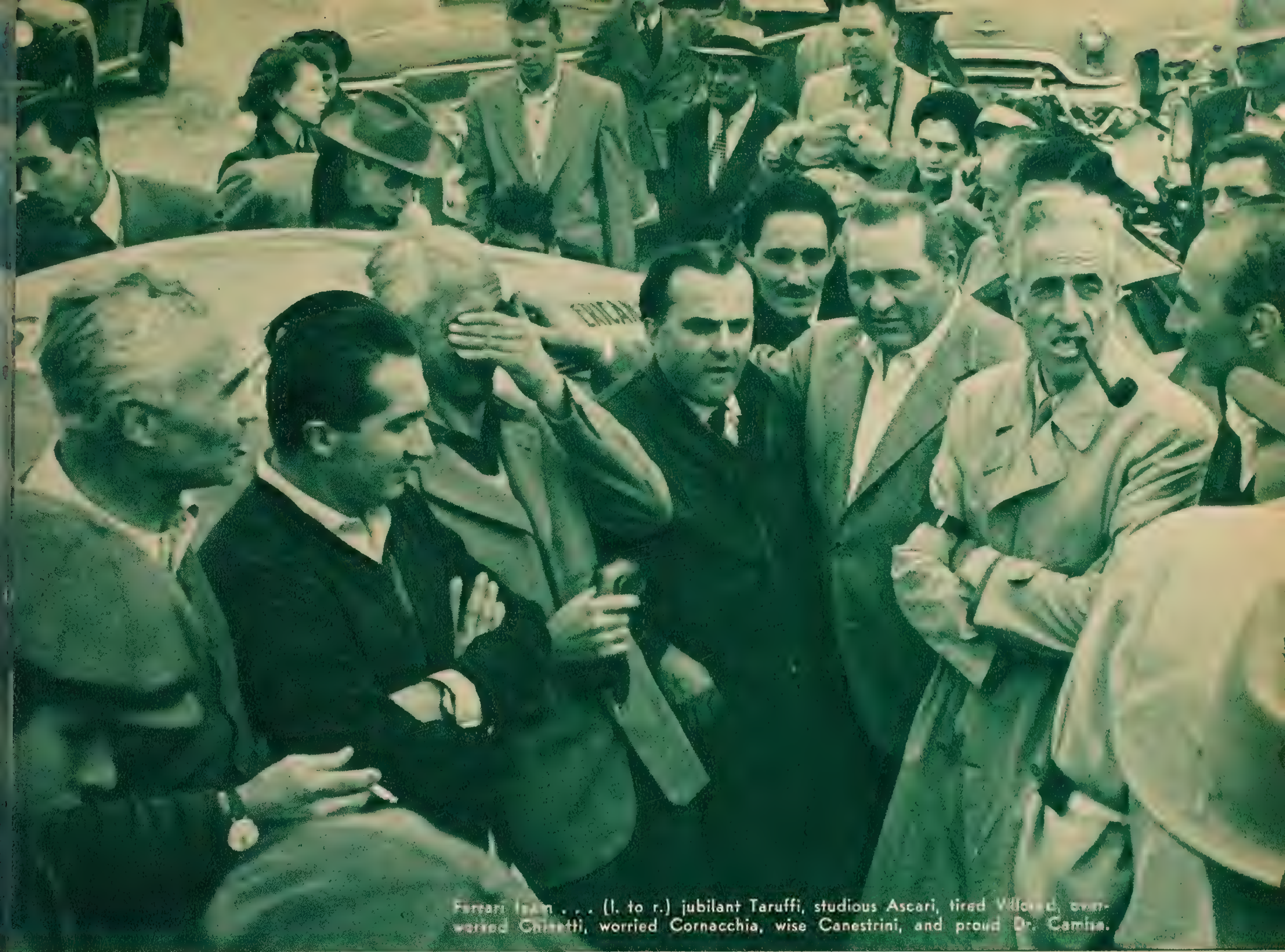
Siata-Crosley

Threadbare at Oaxaca.

II Carrera Panamericana

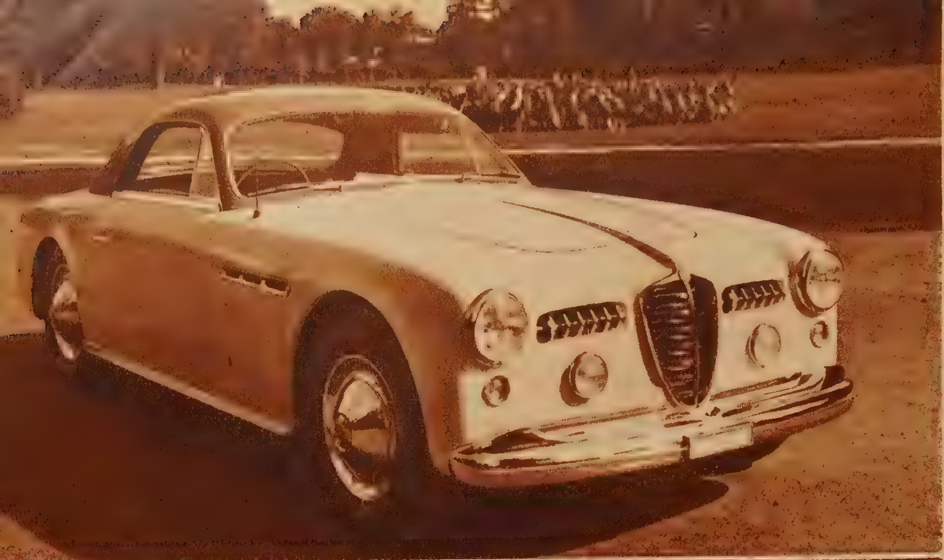
Villoresi corners fast

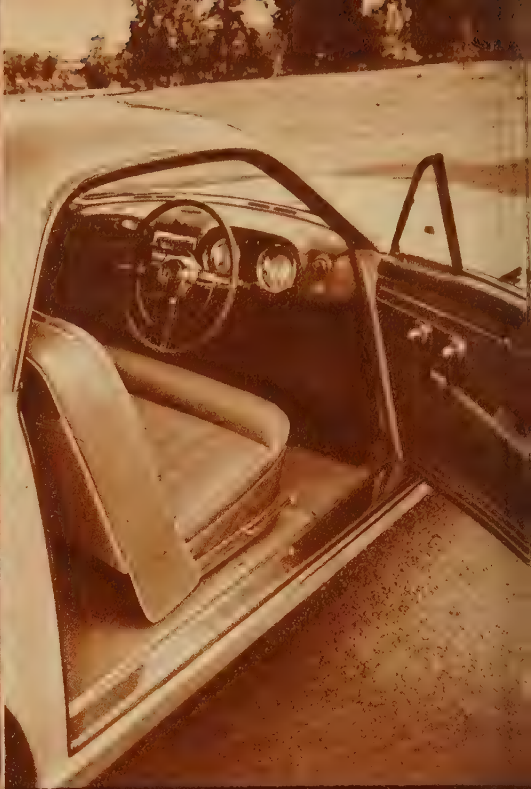
red but unbowed . . . Wertinger's Chrysler

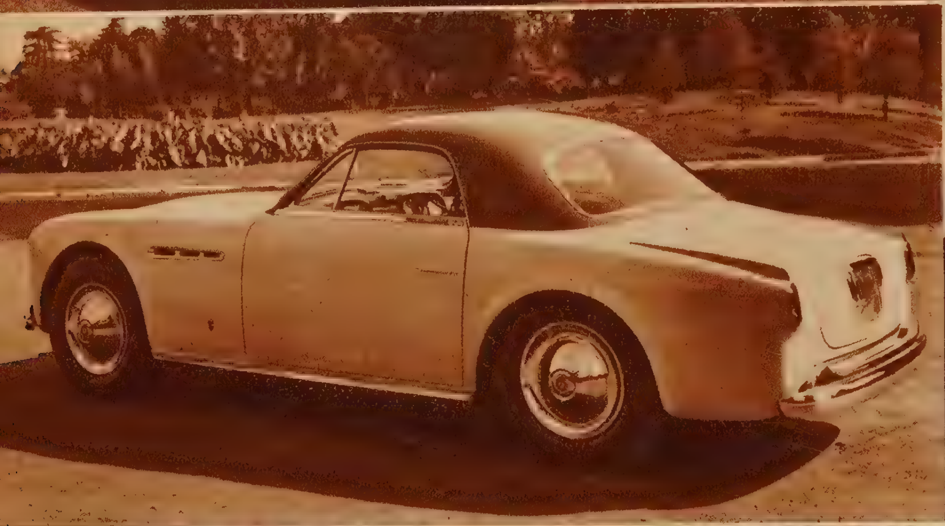


Ferrari team . . . (l. to r.) jubilant Taruffi, studious Ascari, tired Villoresi, overworked Chinetti, worried Cornacchia, wise Canestrini, and proud Dr. Camisa.

Victorious Taruffi







Carrozzeria Ghia

Carrozzeria Ghia (Torino, Italy) was commissioned last year to build Chrysler's "Dream Car". This coupe (which will vie with General Motors' Le Sabre and Buick's XP-300 for a share of the future-minded car buying public's attention) is now on a tour of U. S.

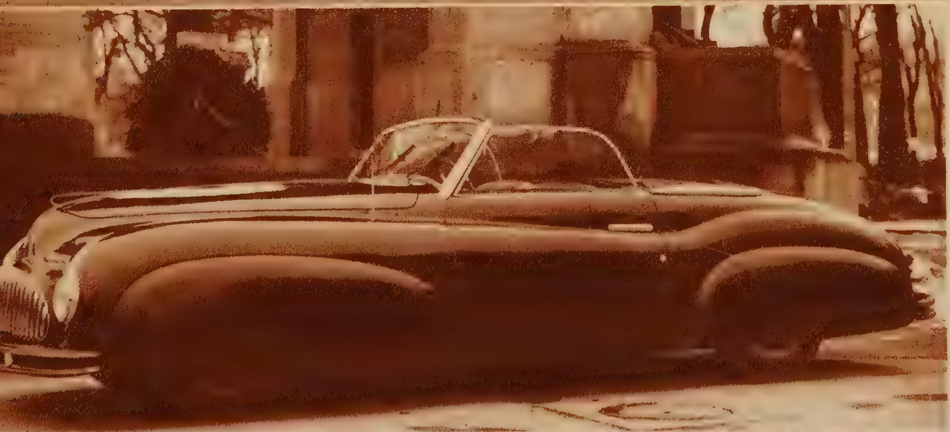
A glance at the top three photographs makes it quite clear why Chrysler chose Ghia for the job. This Italian house (one of the most radical when the mood is right) is nevertheless able to create all that is best in clean, straight-foreward, beautiful, modern Italian coachwork.

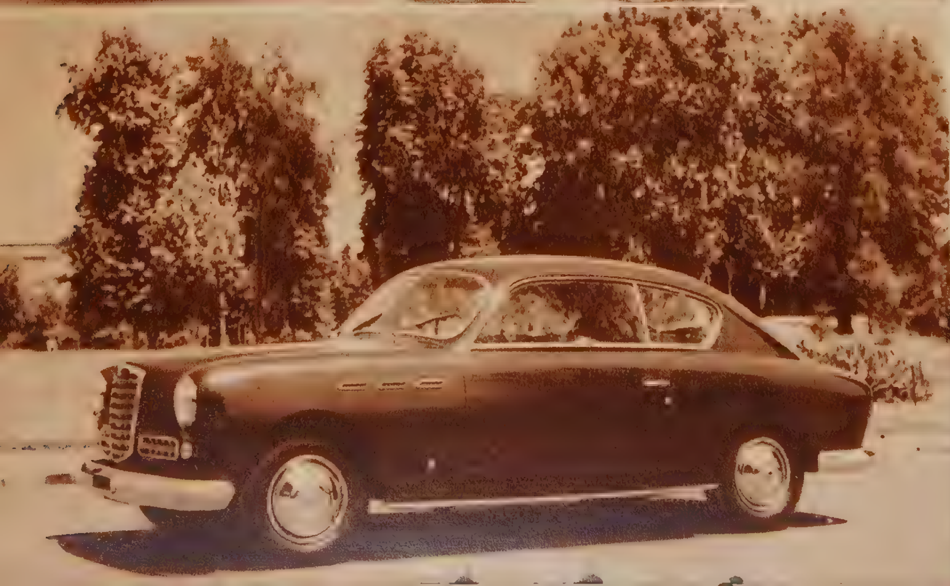
The model under discussion, based on the Alfa Romeo 6C-2500 SS chassis, is completely Continental in concept. Even the bumpers. These (tho vast and ponderous enough to afford adequate protection in the Western Hemisphere's mad traffic) are planned with pleasing curves.

The two photographs on the left show the sensible evolution which has taken place on the Ghia drafting boards since the war. Both cars are Fiat 1100s, but any other resemblence is rather remote.

The front fender skirts proved themselves quite useless and very unattractive—so Ghia dropped them—along with the ugly overhang and too bulbous side panels.

The Fiat two-door coupe expresses most of what is currently sound, currently pleasing.





POETS CORNER

SAM'S PRIDE AND JOY

There once was a red M.G.,
That was as pretty as could be.
The owner was such a fanatic
That the car had everything but Hydra-matic.
Receiving nothing but loving care,
It soon looked like a Pep Boy's nightmare.
Now the car is only for show,
For it has too many badges to be able to GO.
So good luck to you, little M.G.,
For standing beside you yelling "Hands Off" will your owner be.

A SIMCA owner

DADDY HAS A SPORT CAR

My husband has a Sports Car
The emblem you can see
A closer look will show you
It proudly says "MG"

With EVERYTHING, plus blower
It goes just like a jet
Stock car owners glower
When he passes in his "pet"!

Were they allowed to drive it—
Which I doubt they'd be—
They'd lose their disapproval
Nourished formerly!

It's more than transportation
Proud pleasure one does feel
Monarch of the highway
With hands upon that wheel.

Now I took quite some convincing
That such a buy was good,
But here I'm telling others
As he was sure I would.

For safety and for comfort
It's TOPS—you'd be surprised!
'Tis the greatest little auto
Car makers have devised!

Our mileage is our smile-age
Over hills and over dales
It handles on the corners
As if fastened onto rails.

We cite a good example
Of axiom old, you see
"Good things come in small packages"
Including an "MG"!

So, stock car owners, listen,
Pull your nose down from the air;
Until you've driven one yourself
Those comments just aren't fair!

Mrs. L. E. Stuart

XP-ensive

Quick, back to the drafting boards, fellows;
I just made a new "mock-up" with Jello,
Start it shaking and do some note-taking
While I tell the public the progress we're making.

The new bodies will be longer, lower and wider,
Twenty feet bumper-to-bumper shaped like a glider.
We'll put about 340 hp underneath the hood
Which, of course, is just 300 more than we should.

With steam heated binders, pedestrian finders;
Ah, this era of progress is dandy,
Rubber bumpers protect the plaid fenders
And inside, a dispenser for candy.

It has a new transmission, really a dream,
A novel little deal filled with whipping cream,
Guaranteed best because it's free of static
And called (Pat. Pending) Whip-o-matic.

Push button radar, built-in milk bar,
Strictly no end to the progress we're making.
"Super-sonic Comfort" is the mark of this car
And say, don't let that model stop shaking!

You lucky, lucky people, just make a deposit.
This dream boat has more stuff than Old Fibber's closet;
The only thing that worries me, and it may be a jar—
With all its lovely features . . . this is a *ca: ?*

—Frank Panfilio

WHAT YA MEAN? IN MEMORIAM!

Oh Dotty I read in *Road and Track*
You've done me dirt behind my back.

Oh faithless, traiterous, two-faced hag!
You've turned me in on a snooty Jag!

Here I've been thinging that day in fall
You'd taken me in for an overhaul

Or a tune-up treat for your green MG
And somehow forgotten to call for me.

So that's the reward for your faithful bug
That left in the dust full many a mug

Who poured on the coal till his hack did grunt
(Him and his snazzy fireplace front!)

So you tossed me over for a jade of a Jag,
A long-nosed bejeweled queen of the drag.

Oh I've nothing against this Coventry hop-up,
But my dear have you seen her impossible top up?

Oh no, I'm not purchased. I have not a home.
My battery's corroded and dull is my chrome.

The dirt on my paint is turning to crust
And the edge of one door is starting to rust.

A big guy came in a-smelling of sileage;
He despises my shift, but likes my gas mileage.

And his doll, a big number, gave a squeal and a hoot,
"Oh Everett," says she, "ain't this little car cute!"

So this chimp and his gum-chewing babe will possess me,
Me! Your once faithful, so lusty, green MG.

But I'll tell you one thing, you gay-hearted lamb,
You'll need all that oomph from your overhead cam,

I'll show up that XK from its tailpipe to gasket
If I ever meet up with your Coventry Casket!

Alan Beck
(and his green MG)

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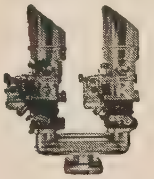

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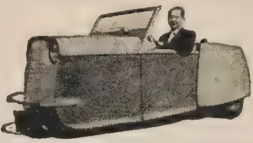

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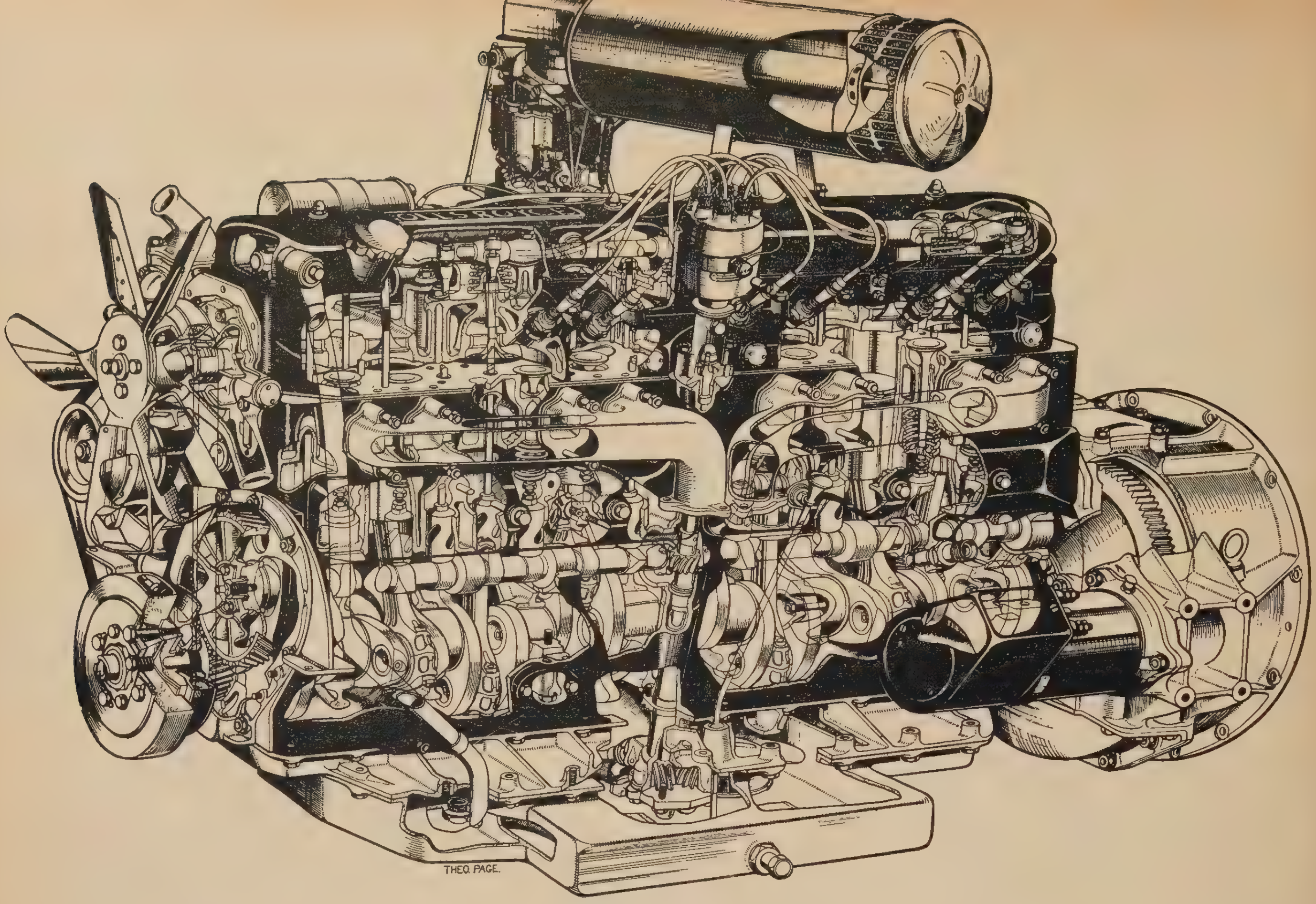
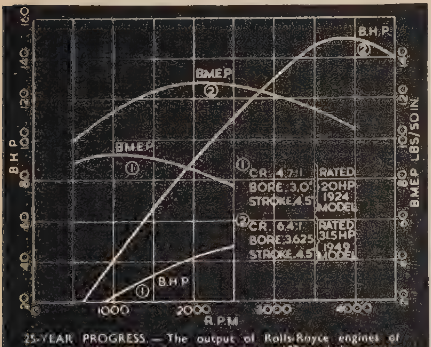


Rolls Royce Engines Feature Interchangeable Parts

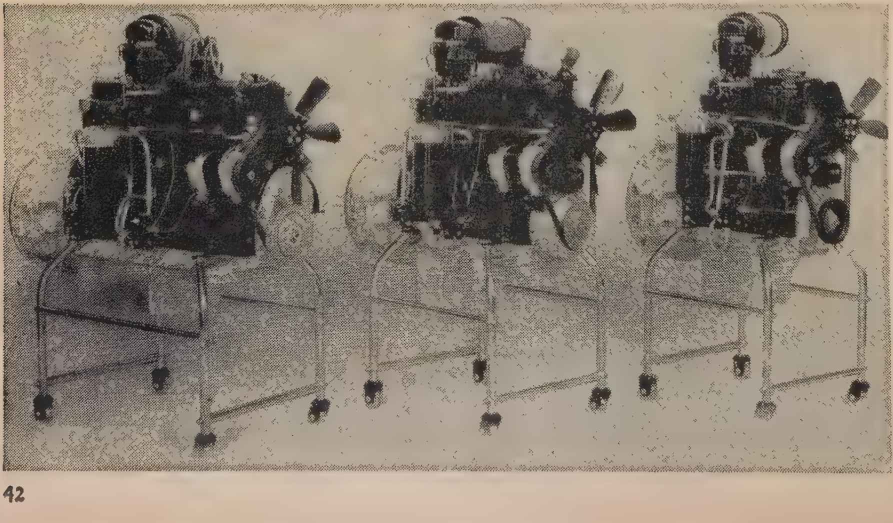


25-YEAR PROGRESS.—The output of Rolls-Royce engines of identical stroke and cylinder centres between 1924 and the present day is vividly shown in the four curves reproduced above.

from The MOTOR, London

If anyone had stated 12 years ago that it would be possible to produce a range of engines which would be suitable, with only slight modifications, for such widely varying installations as six-wheel Army trucks, recovery vehicles, fire engines, reconnaissance and general purpose cars for military use, high performance town and country private cars, and the special six-seater saloon used for both State and private occasions by the Heiress Apparent, there could have been but one response. Derision.

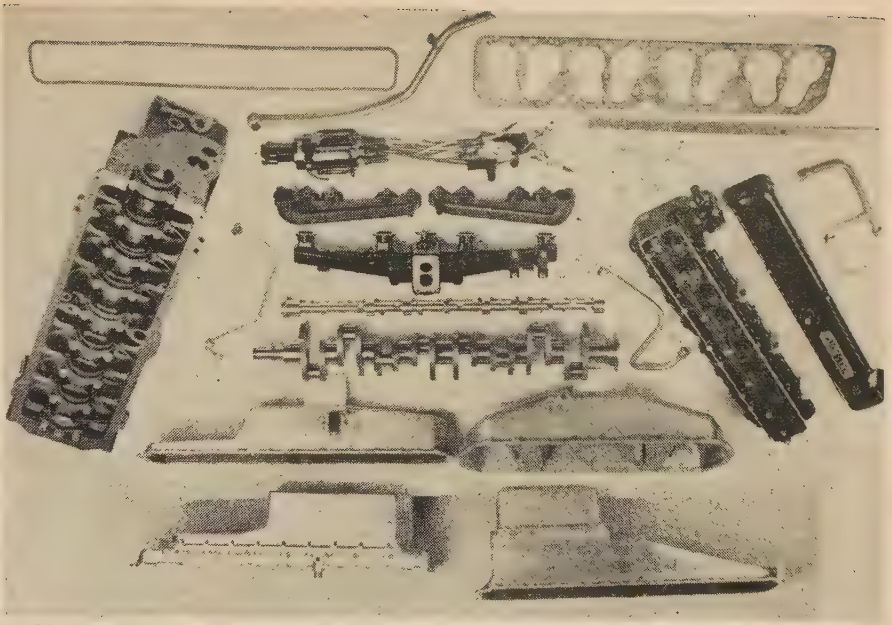
This notwithstanding, the Rolls-Royce engineering team headed by W. A. Robotham (who has recently been appointed a director and Chief Engineer, Motor Car Division) commenced work on a project which would cover all and more of the ambitions set out above and would moreover do so without radical departure from the engines which had been built by the Company in steady series since 1922.



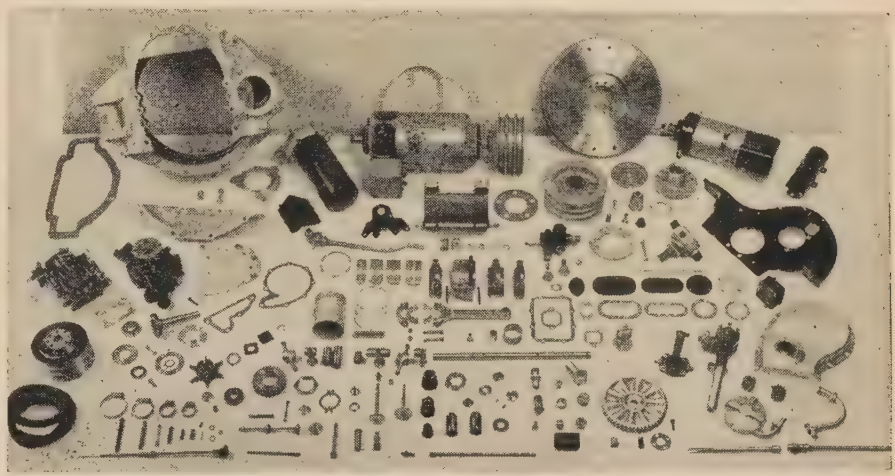
At that time the genius of Sir Henry Royce was directed upon the production of a six-cylinder in-line engine with cylinder diameters of 75.6 mm, centers of 4.15 inches, and push rod operated ohv. In its original form this engine developed 48 hp at 2500 rpm, equivalent to 78 bmep at 1450 ft min piston speed. By 1939 the cylinder diameter had been increased to 88.8 mm and with stroke unchanged the maximum speed and bmep had risen very sharply indeed along the curve indicated in a graph reproduced in this article. This threefold increase in output had been obtained with steadily increasing standards of reliability and longevity, and a great fund of experience had been obtained in the previous 17 years.

In order to utilize this knowledge to the best advantage, the "B" series of engines, as they came to be called, were designed around the same basic plan of a seven-bearing crankshaft and cylinder centers still separated by 4.15 inches. Considerable changes were, however, enbodied in the general lay-out of the new engines in that the previous detachable cylinder block was relinquished in favor of a common block cum crankcase construction, and the conventional in-line arrangement of overhead valves was abandoned in favor of the F-head lay-out in which the inlet valve is push-rod operated and seats in the light alloy head, while the exhaust valve is placed in the side of the cast-iron block.

This arrangement has been claimed by a number of eminent specialists to give the optimum control over the combustion process and it will be obvious that it also opens the way for an inlet valve of virtually unrestricted diameter. It is less obvious, but of equally



The parts illustrated above are the non-interchangeable parts of the 8-cylinder version.



The parts above may be used on all three new Rolls engines, the four, six and eight.

great importance, that on an in-line engine the overall length is normally determined by the combined diameters of the inlet and exhaust valves. Alternatively, for given length the breathing of the engine, and its maximum power, are governed by the restriction imposed upon valve diameter.

These limits can be removed by placing the valves transversely across the bore but so doing involves the use of one or two overhead camshafts, or a complicated arrangement of pushrods, or the F-head layout. The latter was adapted by Rolls-Royce Ltd., after some two years' intensive development work, on a single-cylinder engine, and was combined with a relatively long S:B ratio of 1.3 so as to provide a reasonable compromise between engine length and swept volume.

With a bore and stroke of 88.8 x 114.3 mm, one has swept volumes of 2.84, 4.24 and 5.76 litres with 4, 6 and 8 cylinders respectively, and in these forms the smallest of the three, designated the B-40, develops 82 bhp at 3,500 rpm, the intermediate (B-60) size 126 bhp at 3,750 rpm, and the eight-cylinder B-80 164 bhp at 3,750 rpm.

All types are constructed in Mark I and Mark III form, the accessories on the latter being so disposed as to reduce the overall height of the power unit. All three embody a large number of common parts and specially designed features.

Design For Longevity

Taking first some of the technical items of outstanding interest, the crankshafts are in every case made from EN 19 steel and are nitrided all over and heavily counterbalanced. As can be seen from a section of the engine, the big-end pins are drilled parallel to the line of movement—an expensive and somewhat difficult machine operation, but one which provides an in-built centrifugal sludge trap. At long intervals the big-end drillings can be cleared by removing the conical discs which enclose the bored-out pins and journals.

The crankshaft runs in the thin strip type of bearing developed in England by Vandervell, and, as supplied by this Company to Rolls-Royce, the bearings and the big ends are of copper-lead with an Indium plating.

In the earlier life-history of the engines, the upper parts of the cylinder bores were chromium plated, this being the point at which they are most vulnerable to corrosive attack, but in current production types the upper part of the cylinder bore is formed from high chrome content alloy inserts. The inlet valve also seats upon an insert in the light alloy head, and the exhaust valves are made from KE 965 steel, an austenitic material which, in addition to having strength at elevated temperatures, is provided with stellite seating and stellite tip so as to be able to run for long periods of time without variations in valve clearance.

Irrespective of whether the engines are used in automobiles of the very highest class, industrial vehicles, or for military purposes, there are obvious and tangible benefits to be derived from maximum possible engine life, and the minimum need for attention and adjustment. It must be emphasized that these qualities are obtained not only by correct engineering and design, but also by intensive detail development with meticulous selection of materials and highest standards of machining and fitting.

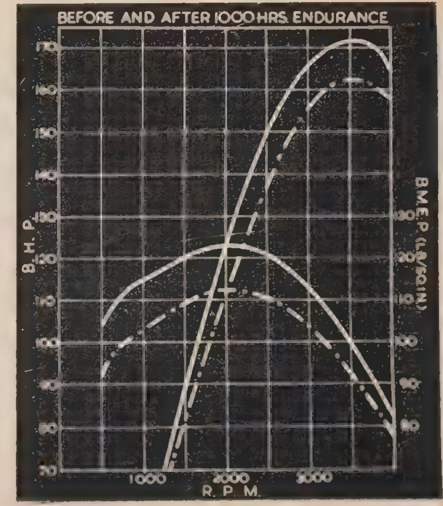
The success of Rolls-Royce in blending together all these many factors is well illustrated by an endurance run recently carried out on one of the eight-cylinder engines (specially bored out on this occasion to 95.2 mm), and using the older arrangement of chrome plating of the upper half of the cylinder bores. As part of a routine test, this engine was coupled to a generator and was run at full throttle for 1,020 hours at 1,850 rpm. On the gearing used for the same type of engine fitted into the car recently delivered to H.R.H. Princess Elizabeth, this would be the equivalent of 39,250 miles, developing a steady 100 bhp for all of them! During this period the only normal maintenance work consisted in nine changes of sparking plugs, some of which were dictated by a desire to experiment with different types; three re-settings of distributor points, and cleaning thereof and four changes of the full-flow air filter element, i.e., at the equivalent of approximately 10,000 miles in each case.

It will readily be conceded that this is a remarkable record, but perhaps even more striking is the comparison between the engine output before and after the completion of this run. This is set out in a curve, and it will be noted that the output has fallen by only 10 bhp, or by some 6 per cent. This figure in itself indicates there could have been but slight wear in the engine, and when it was stripped down it was indeed discovered that the only parts which really needed renewal were the exhaust valve guides which had become substantially bell-mouthed.

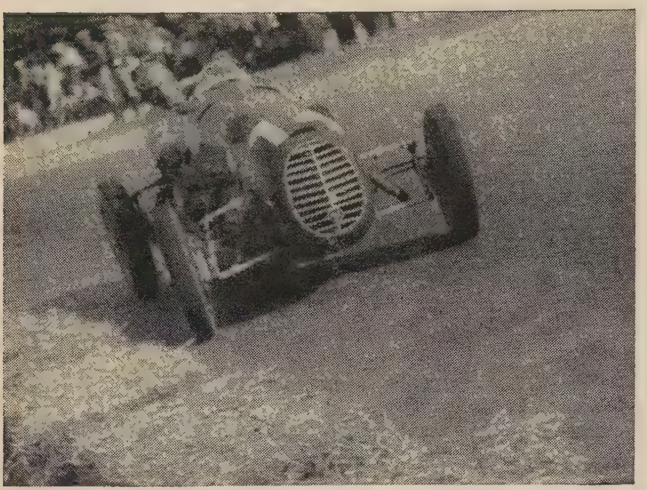
Wear on the pistons was in no case greater than 0.004 in. and was almost uniformly between a quarter and half of this, in itself, small figure. The piston ring gap and the clearance of the rings in their grooves had not increased to any appreciable extent,

(Continued on page 47)

Rod bearings after 1000 full throttle hours.

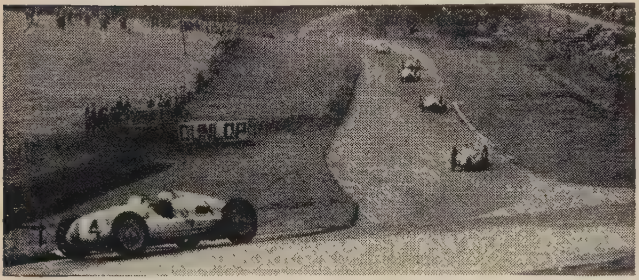


ROAD and TRACK PHOTO QUIZ



1. Felice Bonetto has this 1100 cc Cisitalia entering a:
   - ☐ (a) "thru the hay bales" maneuver
   - ☐ (b) "4-wheel drift"
   - ☐ (c) "spin"
   - ☐ (d) "AAA stance"

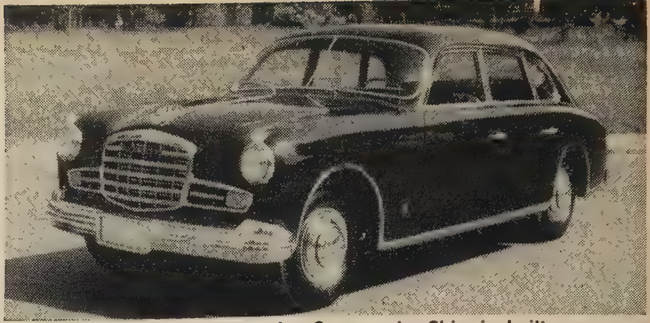
PHOTO BY MILLANTA



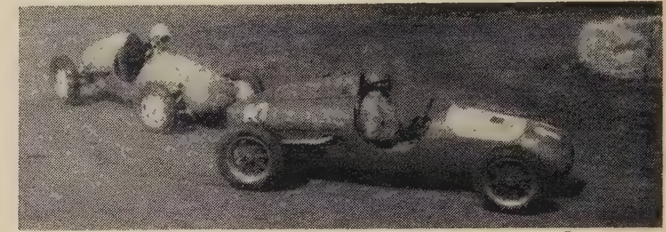
2. This well-known English road racing circuit, scene of the 1938 British Grand Prix is:
   - ☐ (a) Brooklands
   - ☐ (b) Isle of Man
   - ☐ (c) Silverstone Airfield
   - ☐ (d) Donington Park

PHOTO COURTESY "THE MOTOR" LONDON

ANSWERS: 1. Felice Bonetto is entering a 4-wheel drift (b) in this unusual photograph. Rear end will "come around" and all four wheels will point to inside of corner. 2. Donington Park (d) was scene of the 1938 British Grand Prix which was dominated by German cars. Note that first 8 cars are either Mercedes or Auto Union. 3. The neat 4-door by Ghia is on a Plymouth (a) chassis. You should have known this one because it was in the Jan., 1951 issue of Road and Track on Page 15. The two Americans who competed in the Genoa Formula 3 race are Harry Schell and Bret (d). Note American flags on side of car. There will be more of these in next year's Grand Prix races. 5. The Ferrari engine is the same size as the ones which placed 1-2 in the Mexican Road Race, 156 cu in. (c). 6. The new Ferrari has deDion rear suspension and large brake drums, but its outstanding feature is the 4-cylinder engine (c). If you missed this one, look on pages 34 and 35 for the complete story. Keep up with all new developments in Road and Track. Subscribe now! Save 70 cents under single copy price. Just $3.50 for 12 issues.

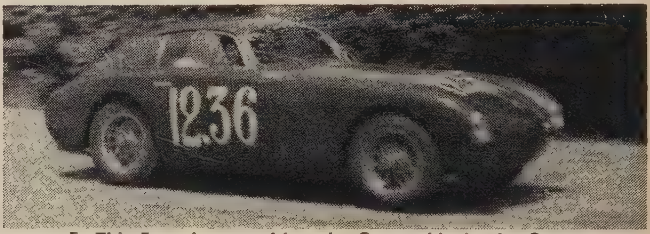


3. This 4-door sedan by Carrozzeria Ghia is built on this standard chassis:
   - ☐ (a) Plymouth
   - ☐ (b) Fiat 1100 E
   - ☐ (c) Ferrari 212
   - ☐ (d) Dyna-Panhard

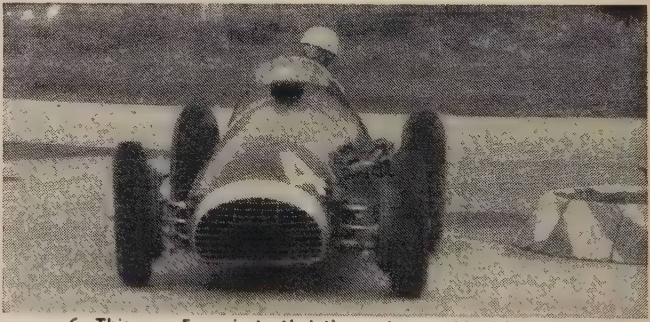


4. These two Cooper 500s competing in the Genoa Formula 3 race are the only American entries to compete last year. The drivers are:
   - ☐ (a) Bettenhausen and Wallard
   - ☐ (b) Faulkner and Ruttman
   - ☐ (c) Hill and Parkinson
   - ☐ (d) Schell and Bret

PHOTO BY MILLANTA



5. This Ferrari coupe driven by Cornacchia in the Coppa della Toscana will go 130 mph with ease. What is the displacement of its engine?
   - ☐ (a) 2325 cc
   - ☐ (b) 4100 cc
   - ☐ (c) 156 cu in.
   - ☐ (d) 2 litres



6. This new Ferrari startled the racing world with a convincing victory in its first race. The outstanding feature is its: PHOTO BY MILLANTA
   - ☐ (a) deDion rear suspension
   - ☐ (b) large brake drums
   - ☐ (c) 4-cylinder engine
   - ☐ (d) V-16 centrifugally blown engine

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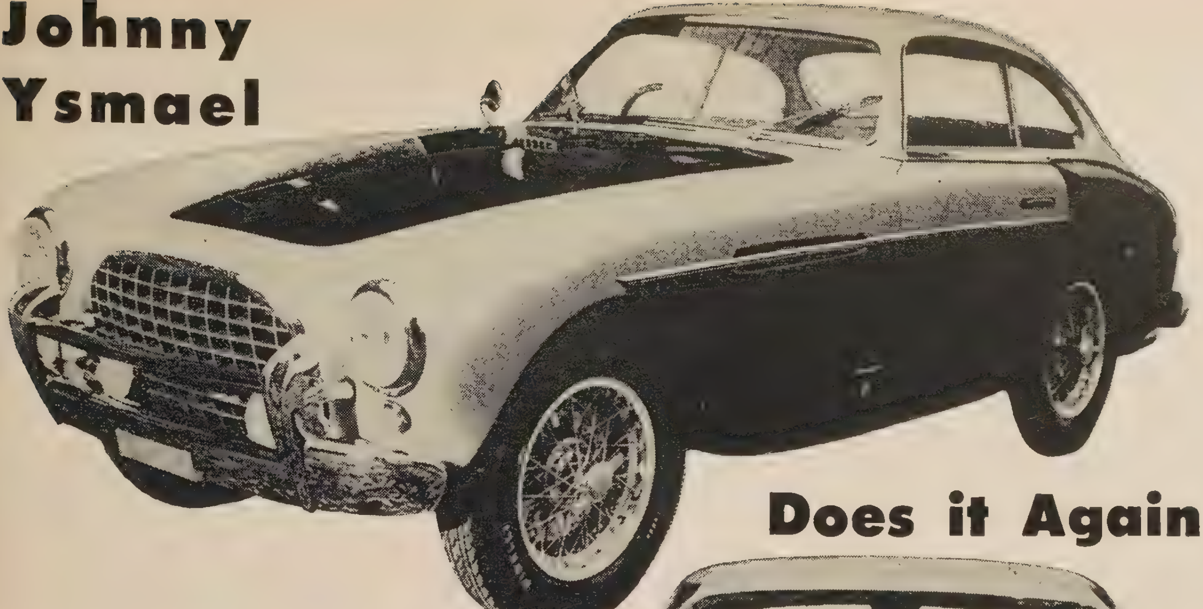
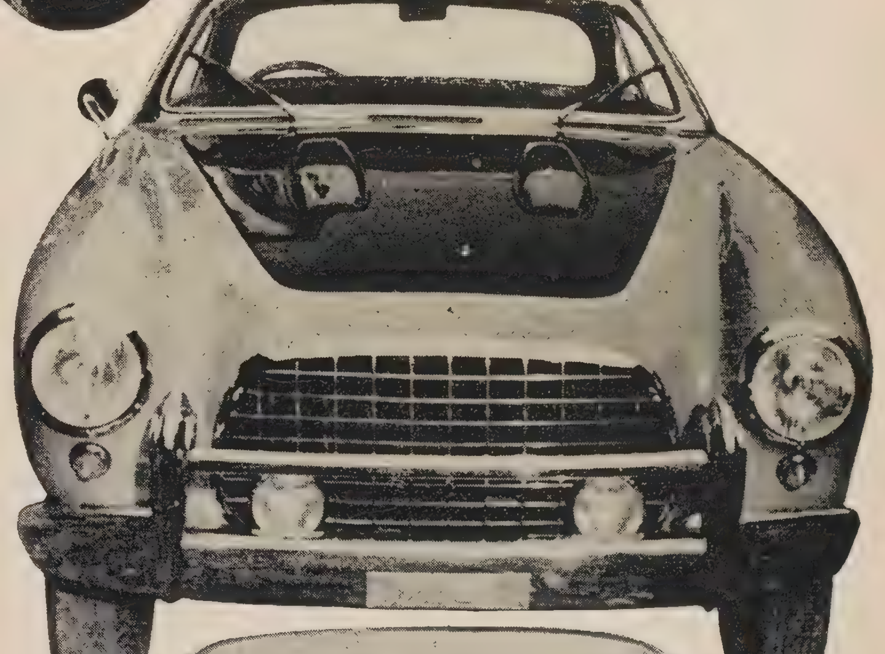


Does it Again!



Readers . . . enthusiasts . . . who dream of owning their own stable of cars will recall with a slight twinge of envy *Road and Track's* (May '51) story of Johnny Ysmael's collection of fast and fascinating vehicles.

To his beautiful Alfa Romeo, custom Jaguar, and super-chromed MG, to name three, Johnny has added a car which is without question *the* last word in automobiling.

Periodically—yearly, if possible—Johnny and Mrs. Ysmael leave their four children and home in Manila and take a turn around Europe to see what the latest auto shows have to offer. Each trip seems to turn up something which Johnny is able (with a few personal touches here and there) to add to his collection of drool-stuff.

On his last trip, Johnny got together with Vignale's designer in Turin to produce this 4½ litre Ferrari coupe. The designs were mostly Johnny's and the forms were thrown away after the completion of the bodywork—thus, the car will be truly "the only one of its kind."

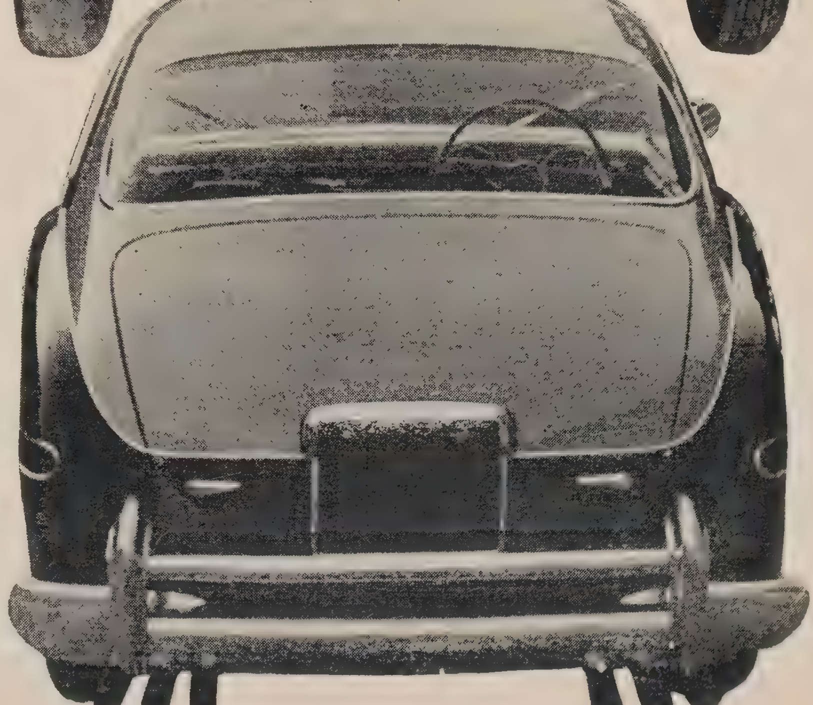
In discussing the speed of Johnny's new car, one must say, *extra*, for the top speed is well over 150 mph—making the reader wonder where in the world Johnny is going in all that hurry.

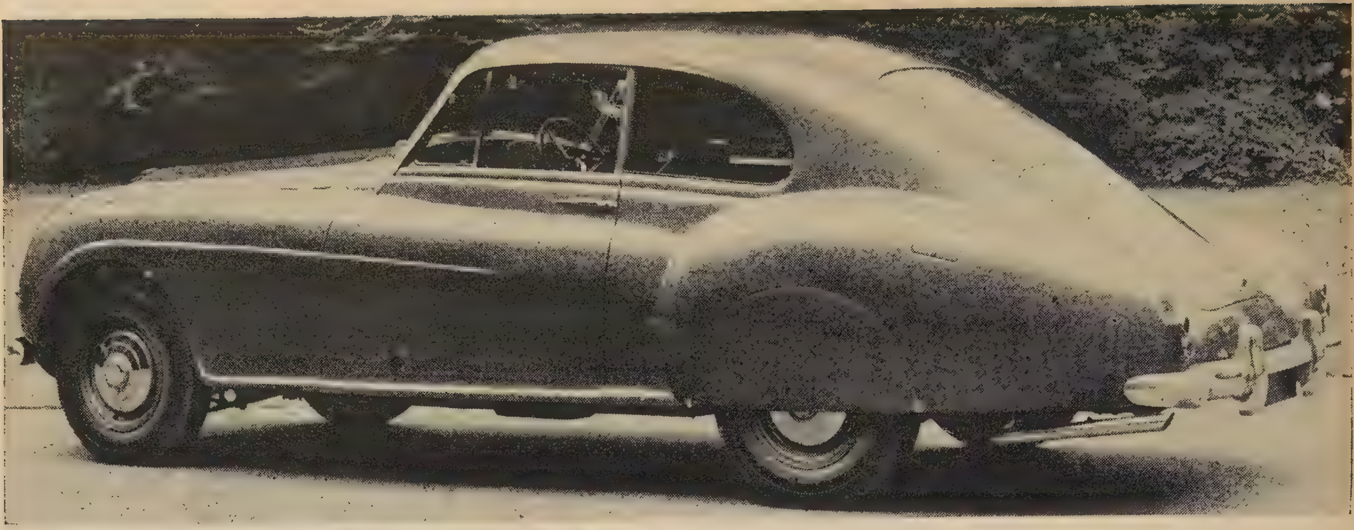
The compact coupe is light in weight—all body work and interior fittings were molded or cast in aluminum, so that the well-over 250 horsepower engine only has to lug around 2,200 lbs—which, of course, means fantastic acceleration.

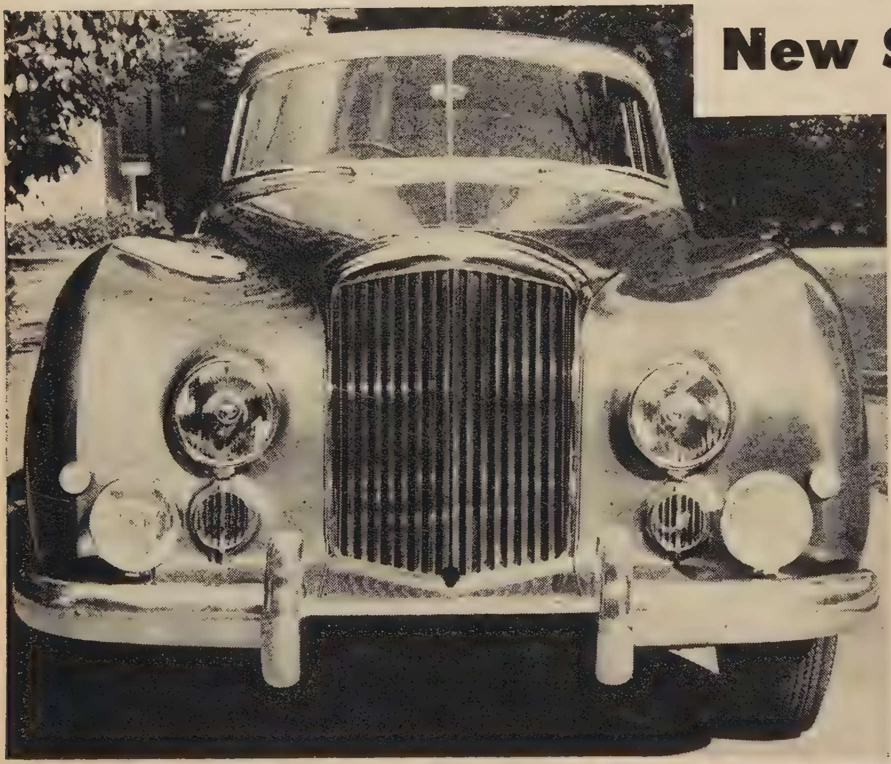
What Johnny Ysmael had in mind when he forked over his $25,000 (that's right . . . a two and a five and three zeros) was a car which would be a true competition/touring model. Having used the Ferrari chassis and 4½ litre engine for performance and roadability, and the Vignale body for beauty, he turned his ingenuity to the interior.

If anyone gets in the way when the car is moving at, say, 140 mph, a blast of the electrically-compressed air horns will let them know in no uncertain terms that something is on the move. The seats are equipped with safety belts and plenty of thought has been given to driver and passenger comfort in the seat design itself. Two more seats are provided in the rear and an extra-large luggage space is exposed when the rear deck is opened.

If enthusiasts hope to see and recognize the car, they are advised to memorize the rear elevation with its six protruding pipes. That is the only part of the car they are ever likely to see—unless it is parked.







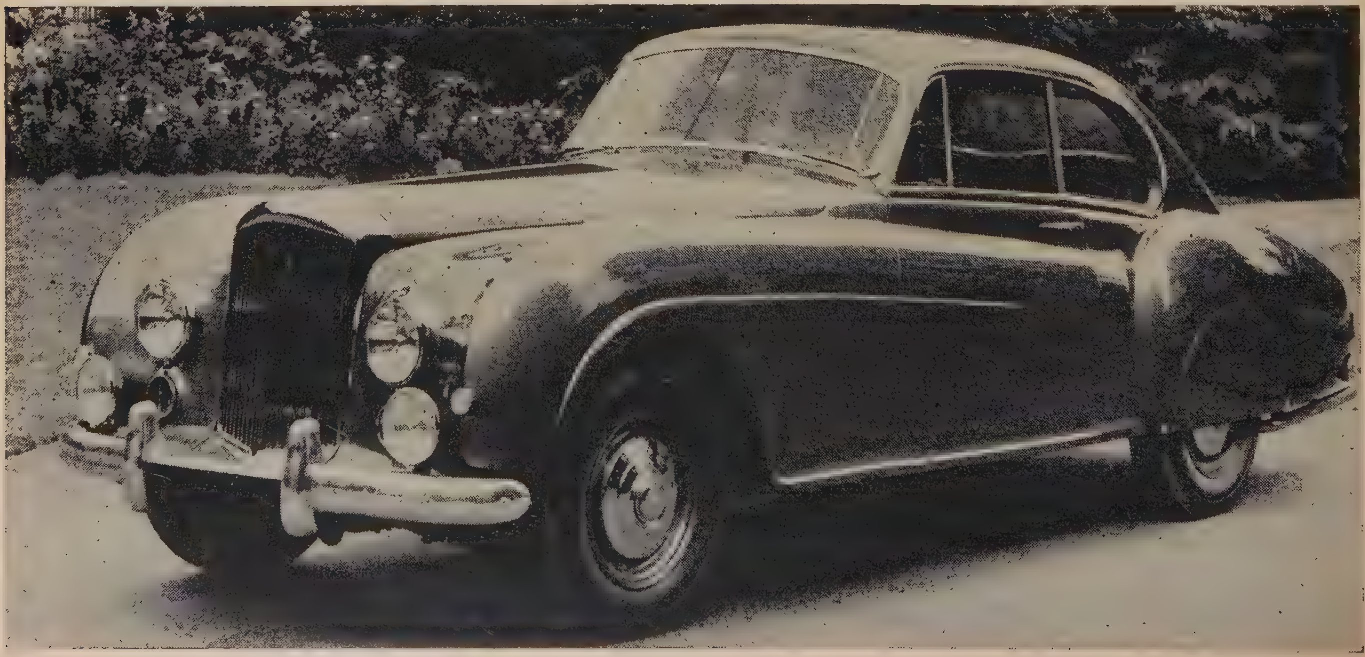
New Sports Bentley

Bentley Motors, London, have decided to introduce exclusively for the export market a special Bentley Sports car which will be known as the Continental Sports Saloon. It will be capable of a maximum speed of 115 mph and the acceleration and general performance will be quite phenomenal. Tho the car will be exceedingly fast *it will retain the degree of silence* which is always associated with Bentley and Rolls Royce cars. Bentley, Ltd. believes that this special model will appeal to a limited number of customers who desire a car with Rolls Royce characteristics but which will at the same time be capable of outstanding performance.

The prototype model has been undergoing tests in France, at the Montlhery track near Paris. It lapped the track at 118.3 mph and its speeds in gears are approximately: 1st gear, 50 mph; 2nd gear, 75 mph; 3rd gear, 100 mph. Top speed 115/120 mph.

The coachwork is by H. J. Mulliner and is of special light-weight construction. The complete car weighs approximately 3700 lbs.

Bentley's policy will be to offer this car only to experienced drivers and the customer must agree, before accepting an order, that the car will not be used in competition or racing events.



ROLLS-ROYCE ENGINES

(Continued from page 43)

and the maximum wear at the top of the cylinder bores was 0.0016 in. (number six cylinder) with, again, the average figure being about half this. All the bearings stripped down were in very good condition, and a photograph reproduced shows the almost startling perfection of their surfaces after so long a run. This is the more interesting because the gauze screen of the floating oil in-take which supplements the full-flow filter was almost entirely masked by a coating of sludge, and it is remarkable that sufficient oil was maintained in active circulation.

However excellent the results of a test-bed of this nature may be, it is to be admitted that it covers but one facet of engine performance, and, in addition to experience gained from power units to this design which are fitted to the current Rolls-Royce and Bentley cars, the manufacturers have therefore installed, with the co-operation of other vehicle manufacturers and the military authorities, a number of engines in widely varying classes of vehicle.

In order of size and basic engines weigh:

B-40	475 lb.	(5.8 lb/hp)
B-60	625 lb.	(4.94 lb/hp)
B-80	745 lb.	(4.5 lb/hp)

Particularly in the larger sizes these figures show very considerable economies over comparable alternative engines which thereby increases the overall load carrying capacity.

A study of the sectioned engine drawing makes it clear that the Rolls-Royce "B" series of engines are not the cheapest or the most simple to build in the first instance, and with ever-increasing attention being given to their military purposes it might be thought that this constitutes a grave handicap. An apparent essential in wartime is the biggest possible output for the fewest man-hours, but this is stating but a half-truth. The ultimate criterion must be the total man-power required to produce a given hp for a given time. If, therefore, by a 50-per cent increase in the first cost, engine life can be doubled or maintenance hours halved, the overall effect on the economy either in peacetime or war is beneficial.

Perhaps an even stronger claim which may be put forward for these new Rolls-Royce engines is that in themselves they constitute a range which will meet practically every wartime requirement with an absolute minimum of different pieces to be held in store for the essential replacements and repairs. It has been calculated that for a given number of transport vehicles of varying make and type as used in World War II 3,000 engine spares would be needed to cover all reqirements. The number of different parts if all the vehicles were using the Rolls-Royce "B" series would fall to 300.

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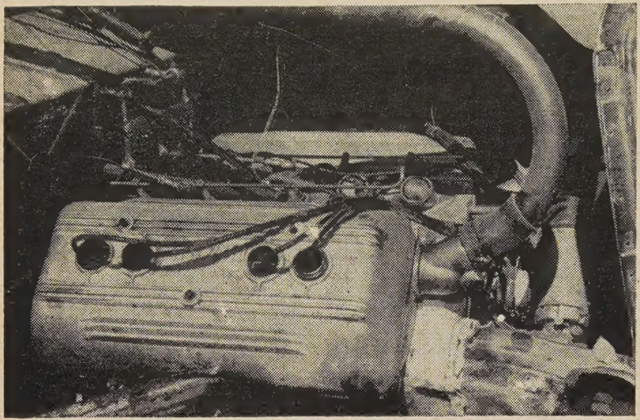
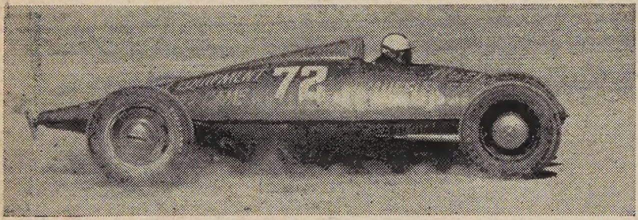
HOP UP QUIZ

(ANSWERS AT BOTTOM OF PAGE)



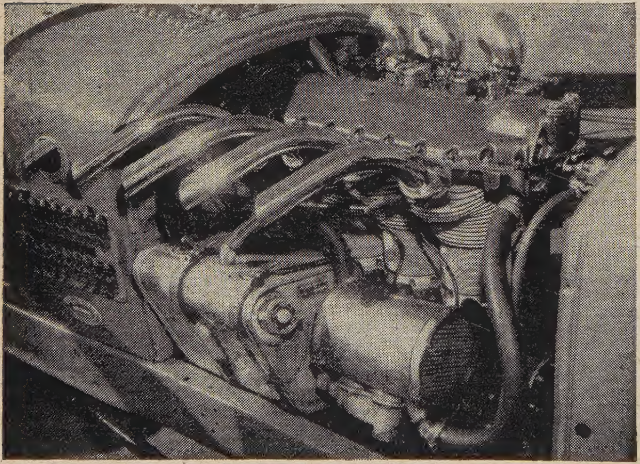
1. This engine is in a 1934 coupe which holds the Class C record of 133 mph. It has what make of heads?

☐ (a) Offenhauser
☐ (b) Edelbrock
☐ (c) Ardun
☐ (d) Navarro



2. Bob McClure is in a class with some stiff competition. He is running against Earl Evans, who holds the record with a speed of:

☐ (a) 169 mph
☐ (b) 201 mph
☐ (c) 181 mph
☐ (d) 172 mph



3. Norm Taylor and Jot Horn own this unusual roadster, which is powered by what kind of engine?

☐ (a) Ranger Aircraft
☐ (b) 12 cylinder Ferrari
☐ (c) Cummins diesel
☐ (d) Air-cooled Franklin

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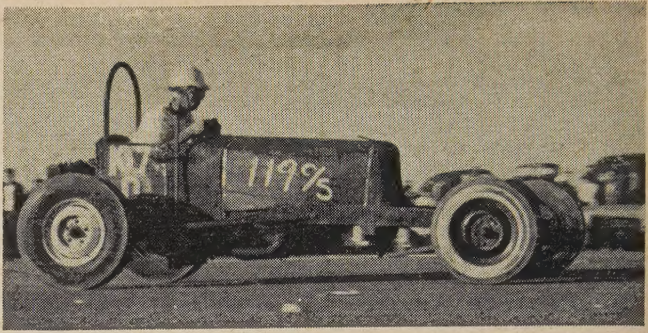
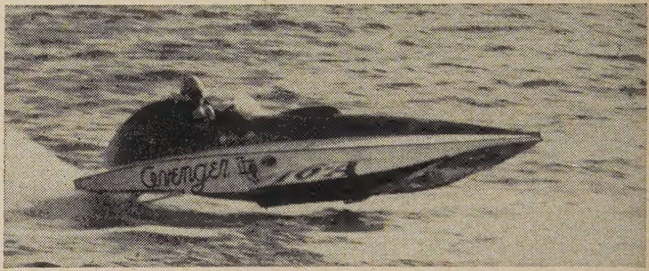


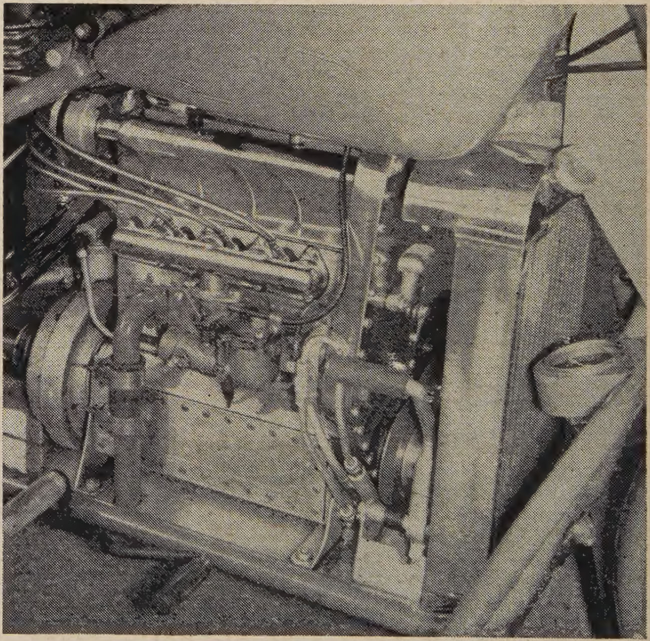
4. Otto Ryssman's stripped-down "drag" roadster has covered the quarter mile in an elapsed time of:

☐ (a) 16.73 secs.
☐ (b) 12.18 secs.
☐ (c) 8.97 secs.
☐ (d) 14.04 secs.



5. The driver of this 135 hydro is a well known speed equipment manufacturer. His name is:

☐ (a) Ed Elliott
☐ (b) Eddie Meyer
☐ (c) Earl Evans
☐ (d) Enrico Nardi



6. This 4-cylinder, water-cooled, chain-driven overhead cam engine was built for a motorcycle by:

☐ (a) Mustang Corp.
☐ (b) Indian
☐ (c) Harley-Davidson
☐ (d) Howard Forrest

ANSWERS: 1. (c) Mailliard and Cagle's coupe holds the record and it has Ardun OHV heads. For technical features read HOP UP. 2. (c) Earl Evans has turned 181 mph in his drop tank. For full dry lake coverage . . . read HOP UP. 3. (a) This roadster has an upside-down and backward Ranger aircraft engine in it . . . you saw it first in HOP UP! 4. (b) 12.18 seconds for the quarter mile, set at the San Diego Timing Strip. For complete coverage of all the drag strips . . . read HOP UP. 5. (b) Eddie Meyer is the proud owner and driver of this trim 135. If you're interested in boat racing . . . read HOP UP. 6. (d) Howard Forrest hand-built this beautiful, mechanically perfect engine . . . For cycle coverage read HOP UP. All these photos are from the Feburary HOP UP . . . on sale at your favorite newsstands. How about subscribing today? Use handy subscription form at left.

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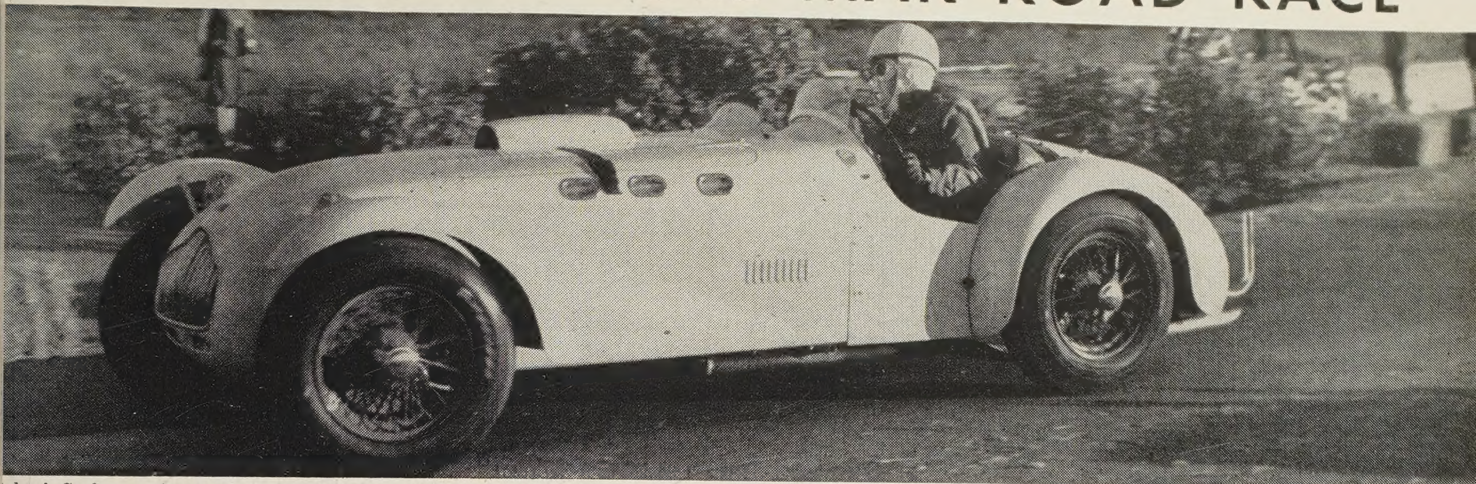
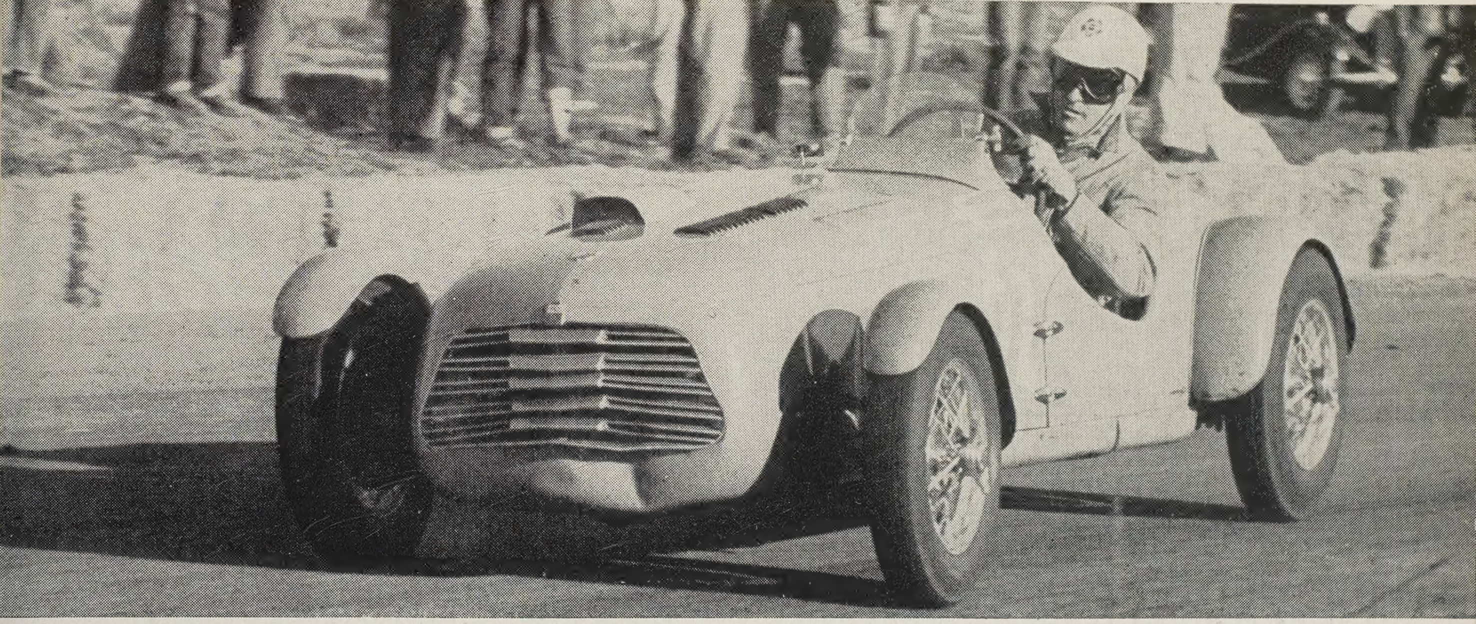


chael Graham, winner of first Del Mar Road Race. Grant rings were used in this Cad-Allard owned by J. E. Chapman.



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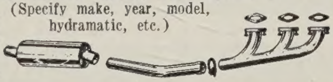

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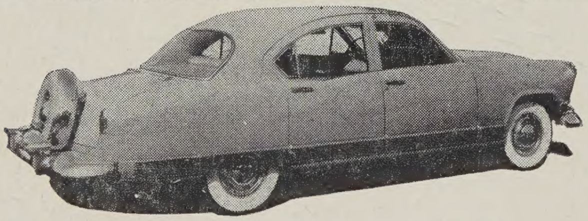

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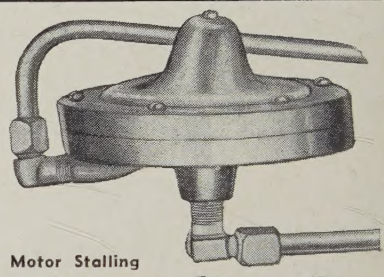

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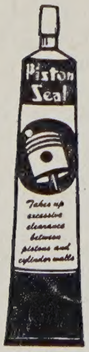
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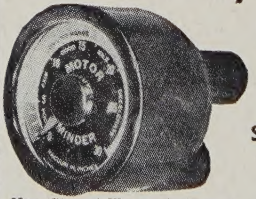
Holt's Piston Seal is "Penicillin" in your engine. This amazing British product compensates for wear by forming self-expanding pliable lubricating seal around pistons. Lasting 10,000 miles, it cuts oil losses, restores compression and checks piston slap. Practical treatment for all internal combustion engines! Easily installed. Complete treatment for one engine **$6.95** postpaid.

THE 'MOTOR MINDER'
For Economy-Driving



Deluxe Model
$13.95
(shown)

Standard Model
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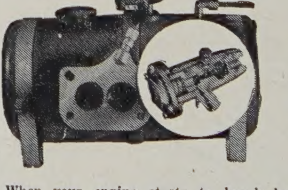
New Stewart-Warner instrument tells at a glance how to save gasoline, how to drive efficiently, and how to locate and remedy engine troubles. Fits all cars and trucks. Includes complete kit for easy, quick installation. Special bracket mounts instrument above or below dash. A practical and beautiful accessory for any car.

Standard Model	$10.95
New Deluxe (Ebony Case)	$13.95

Boost Mileage With An Octa-Gane



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